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Beatty BARN BOOK

Beatty Bros. Limited
Fergus, Ont.

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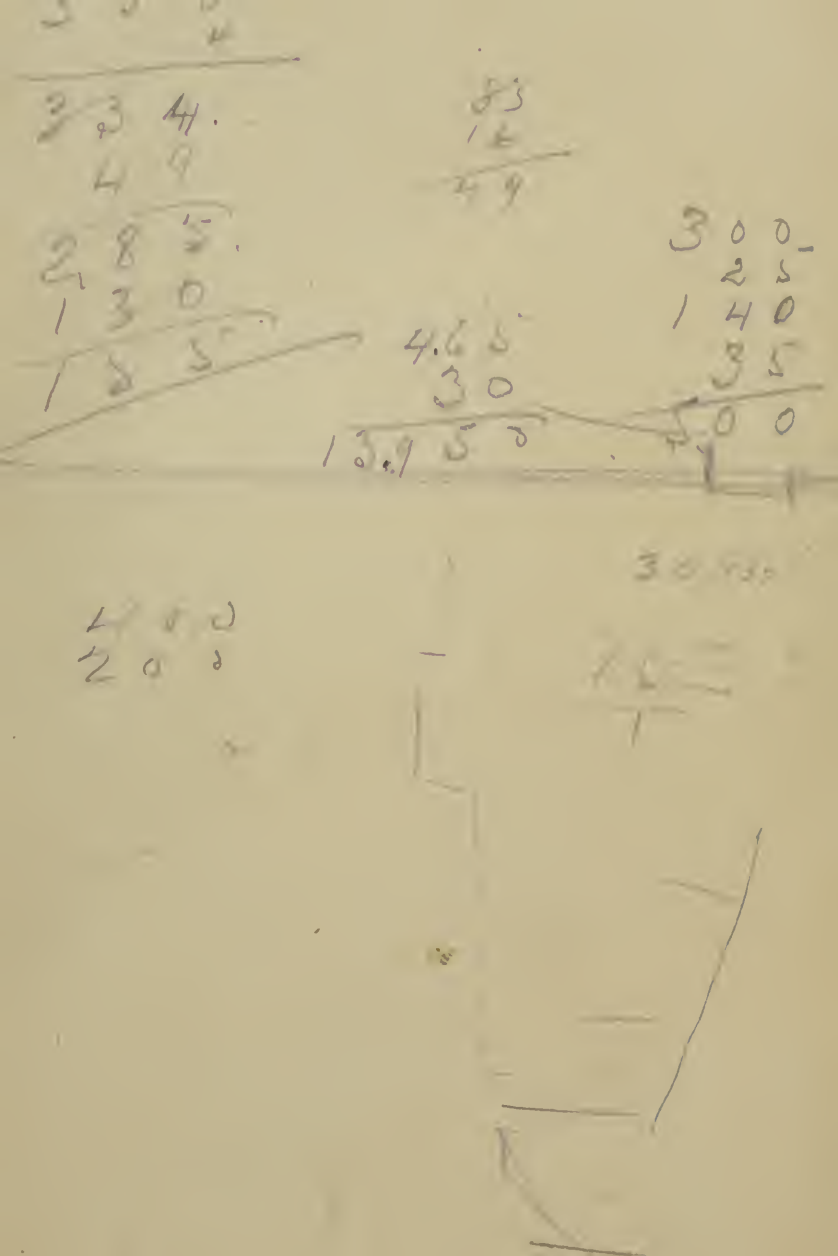


Dominion Experimental Farm
Herd, Agassiz, B. C.

Barn of Lady Eaton
Eaton Hall Farm, Eversley, Ont.

One of the Dairy Barns

The Calf Barn

Barns of Walker Sons, Limited, Walkerville, Ont., fitted throughout with Beatty Equipment.

Barn of City Dairy Co., Limited,
owned and operated by City Dairy Farms Limited,
Toronto.

CANADA—THE HOME OF GOOD BARNS

No country on earth has better barns than Canada,—and no country on earth has greater need of them.

The barn is a vital factor in Canada's prosperity. In 1921, the year of the last census, Canada produced milk to the value of nearly 240 millions of dollars and produced live stock to the value of over 214 millions of dollars. Canada's dairy products and meat products are now well and favourably known all over the world and the exports of these commodities form a very large proportion of Canada's great foreign trade.

The foundation on which this great industry of producing dairy and meat products rests is, in great measure, the efficiency of the Canadian barn. Our climate makes a good barn an absolute necessity. Without it, profitable production in these lines cannot be carried on. Canadian cattle, especially the dairy cattle, must be stabled for the greater part of the year and their health and productivity are dependent as much upon the care exercised in stabling them, through this long period of close confinement, as upon skilful breeding and proper feeding. Well-bred cattle from high producing strains; a good farm, well worked, to supply feed for them; skill and experience in using that feed to the best advantage—all these may be to a large extent wasted, and profit may easily be turned into loss, if the building in which these cattle are stabled for many months of the year is not sanitary and comfortable.

Our business for many years has been to build equipment for barns and stables such as will enable a farmer to raise healthy cattle, obtain from them the maximum returns in either beef or dairy products, and keep them with the least labour and greatest profit. Our equipment is installed in thousands of Canadian barns every year and our customers are numbered by the tens of thousands. In every province, county and township in the Dominion their barns are to be found. We are proud to be thus associated, in what we feel is a most helpful way, with the great live stock and dairy industry of our country.

Our interest in our customer is not limited, however, to providing satisfactory equipment for his stable and barn. Many years ago, we found that this was not sufficient and that there was an ever-growing need for information as to the best method of planning and building the barn itself. We realize that our prosperity is directly dependent on the prosperity and success of the farmers who purchase our equipment and that Beatty Equipment cannot give the service and satisfaction that it is designed to give unless it is properly installed and operated under correct conditions.

Therefore, we commence this Barn Book by a discussion of the essentials of a satisfactory barn. These are briefly reviewed, after which the different points are taken up in detail and illustrated by actual photos and accurate working drawings. By close and constant study of thousands of barns, and close association with the

Horse Barn, University of Alberta
Edmonton, Alta.

best authorities in Canada, we have been able to arrive at a number of excellent standard layouts, which can be adapted by any farmer to suit his particular needs. We have found out the best methods of building the superstructure, building the walls, laying the floors, arranging the ventilation and lighting the stable, as well as determining the best way of tying and caring for the stock. It may not be out of place to mention that this is the fifth edition of the Beatty Barn Book. Copies of former editions will be found in many farm houses, where they are kept for reference. In many Agricultural Colleges, the Barn Book is used as a text book on stable construction, barn planning and other similar subjects. The Beatty Barn Book has been sent practically all over the World, from Scandinavia to the Tropics. It is printed in French, and there is a separate edition for Great Britain, where the rapidly increasing use of Beatty Equipment called for a special Barn Book to suit Old Country conditions.

In the front of the Barn Book, we have placed some photos of recently built Canadian barns, which for handsome appearance are unsurpassed anywhere. We include these to show our readers in other lands what Canadians are doing. Throughout the rest of the Book, will be found many illustrations of less ornate buildings which will appeal to the practical Canadian farmer, who is the buyer of over 90 per cent. of the equipment we manufacture.

There is one point that we should like to make very plain at the outset, namely, that there is no direct connection between the cost of a barn and its effectiveness. In order to be well built, a barn does not have to be expensive. The splendid results that other practical farmers have secured, and which we are happy to be able to show in the following pages, were accomplished by a study of good barns, a careful consideration of the essentials, correct planning and proper design, rather than by lavish expense.

So far as the equipment is concerned, let us say that the farmer who buys Beatty standard equipment gets the same material and workmanship as that supplied to the costliest barns in the land. Any farmer who will build his stables according to the plans, illustrations and instructions which we freely provide, will have just as fine a stable as any in this book.

Finally, let us say that every barn shown herein is fitted with Beatty Sanitary Stable Equipment. The demand for this equipment is greater now than it ever was. The growing appreciation of the importance of well planned and sanitary stables, the excellent service given by Beatty Equipment in tens of thousands of barns in actual use and the word-of-mouth recommendations of thousands of satisfied users have united to create a demand for Beatty Equipment greater than we have known before.

Barns of Percy Lasby,
Moose Jaw, Sask.

The Essentials of a Satisfactory Barn

Man has taken a long time to learn how to make a steady profit from his cattle,—especially in the Winter months. The various shelters that he has used for the cow at different times have gradually developed, until we can now say, with reasonable certainty, that we know the essentials of a satisfactory barn. We are able to say this because these principles have been given a thorough test in actual use and because there are so many cases where farmers have built along these lines, succeeded, and made money.

Let us take the eight essentials in order:—

Economy of Construction

Whether you spend $1,000 or $10,000 on a barn, you want to feel that you are getting *value* for every dollar. Therefore, economy of construction is one of the first essentials of a satisfactory barn. This includes of course, not only economy in the first cost of the building, but also calls for planning the barn so that it will cost the least possible amount for each year of service.

Every square foot of your new barn represents money tied up in that building. This capital expenditure should not only be kept as low as possible, but should be made to pay as much as possible on the sum invested.

Warmth

The first shelter devised for the cow was very elementary. It consisted of a roof of branches and matted straw, piled on a criss-cross framework and supported by upright posts. The cold blasts of winter blew right through this very poor type of shelter, so man gradually added walls and a proper roof. He did this because he found that all the feed that the cow consumed in the Winter went to produce body warmth and long hair. This was obviously unprofitable—what man wanted was milk. Therefore he kept the cow warm. It is a well proven fact that it takes twice as much feed to produce a given amount of milk if the temperature in the stable is 32° as it does if the temperature is 60° . In order to keep the cow stable at the right temperature, the size of the building must be correctly proportioned to the number of animals in it and the walls must be properly built.

Dryness

Dampness is a curse in any stable. It makes the cows delicate, breeds disease, is most unpleasant for the farmer himself and ruins implements or harness.

The correct number of cubic feet of air space for each animal, a proper ventilation system and walls built in such a way as to prevent condensation will keep the stable dry. This is one of the most important essentials.

Sunshine

When man realized that the cow had to be kept warm in order to produce milk, he went to the other extreme. He walled the cow up in a dark, unventilated, airless shed and forgot that the cow, although she would not produce milk in the open was at least hardy and healthy. In the first types of shelter, poor as they were, the cow did get all the sunshine there was to get, which helped a great deal in enabling her to stand hardship and exposure.

Barn of Col. Robertson
Williamstown, Ont.

We are just beginning to realize, at the cost of terrible diseases like tuberculosis, that sunshine is the greatest preventative of disease and stimulator of growth that science has yet discovered. By all means, one of the essentials of a satisfactory barn is Sunshine— lots of it.

Good Air

Another absolute essential to her welfare, of which man in his anxiety to keep her warm, deprived the cow, was fresh air.

Nature gave the cow big nostrils and mighty lungs. She is built to consume large quantities of food. Yet, at the very time when man was developing these points in the cow by every means he knew, he was neutralizing and spoiling his work by shutting up the cows, in airless stables, where the air was foul, drained of the vitally necessary oxygen and often full of disease germs.

The result was that the cows, whose ancestors were used to a hardy outdoor life, became delicate and susceptible to disease. The feed they consumed did not do nearly the good that it should have done, because the cows' bodies were not receiving the quantities of oxygen needed to burn up that feed and turn it into heat. It was like filling the furnace full with the drafts turned off.

If a stable is to be satisfactory, this important matter cannot be left to chance. It must be regulated by a suitable and efficient ventilation system, adapted to climatic conditions, and this system must be kept working.

Cow Comfort

By generations of care and skill, man has changed the wild brute of the open plains,—hardy, tough, and able to withstand the heats of Summer or the icy blasts of Winter,—into the modern Dairy Cow.

He has made this cow the foster-mother of the human race. He has developed her into one of the most delicately balanced productive units known. To get the wonderful production of a good modern cow he has been forced to sacrifice the old ruggedness and indifference to hardship.

This being the case, it is necessary to keep the cow contented and comfortable. This is more than a vague ideal,—it is a practical necessity. Any dairyman who does not do this will not make much headway. Comfortable cows produce more milk. Cow comfort pays.

Cleanliness

A cow cannot be comfortable unless she is clean. She cannot be healthy and dirty at the same time. It is unreasonable to expect her to produce a clean, high-class product unless she is kept clean and lives in clean surroundings.

Nowadays it is easy to keep the cows clean. Cleanliness in everything that concerns the stable is one of the great essentials.

Labour-Saving

So far, most of the essentials have dealt with the effect on the cow. Surely, though, the owner has to be considered too. In order to be satisfactory, a barn must make his work as easy for him as possible. It must remove all unnecessary hindrances and facilitate all necessary tasks. The barn must be planned to avoid all unnecessary steps. The owner must be able to do the work with the least possible expenditure of time, labour and expense.

A barn that possesses these eight essentials will be satisfactory and profitable, whether it is built on a large or a small scale.

BROOKSBANK LABORATORIES LTD
CERTIFIED MILK FARM
FRASER VALLEY MILK PRODUCERS ASS'N
Brooksbank Certific'd Milk

Planning the Barn

Site

If hills, trees, hedges or other buildings are available to act as windbreaks, it is well to take advantage of them.

Group all buildings together compactly so as to save steps in caring for the stock. Have the barn handy to, and accessible from, the fields. Watch the location of the barn in respect to the lane and see that the barn can easily be reached from either the lane or the road.

Run the barn North and South if at all possible. This leaves the long rows of windows on the East and West sides, where they will get the morning and afternoon sun respectively. This will also help to make the stable warmer, because the cold North winds will strike the end. Place the barnyard in the sun, in the West or South-west.

Place the barn on ground that is high enough to allow of proper drainage. The whole building will be dryer and healthier, and it will help a lot in keeping the yard clean. The importance of a clean yard is hard to exaggerate. It will mean much in health, cleanliness of the stock and saving of labour. Many farmers nowadays are building their yards of concrete.

Size and Shape

The size of the farm—the kind of crops— the number and kind of animals to be cared for—all these have to be taken into consideration when deciding on the size the new barn should be.

But these are not the only factors that have to be considered. Much will depend on the design of barn selected; the skilfulness of the arrangement and the sort of stable equipment used. It is always well to remember that every unnecessary square foot is tying up that much more capital, making it that much harder to earn a profit on the year's operations and making extra steps for the farmer to take every day the cattle are in the stable. Make sure that you do not build any "ten-mile-walks" into your stable.

Being much less bulky, Steel Equipment will enable you to accommodate more stock in a given space than wood. The rectangular barn is the best type. If the number of animals is too large for one long barn, two rectangles can be placed together in the form of an L or a T. The cow stalls run, in such a barn, in two long rows, which are very handy for feeding and cleaning.

The standard width suggested for a barn of this type is 34 feet, inside measurement. A barn such as this will be far better lighted than the old square barn. It can be much more efficiently ventilated. It saves time and steps at every turn. It is much neater in appearance and assuredly it is much less expensive to build, under modern conditions. All the barns shown in this book are the rectangular shape, with various types of roof.

Another great advantage of a barn of this type is that it can be added to, with the minimum of disturbance and expense, at any future time.

Appearance

It is well worth while to give some thought to the outside appearance of the barn. It is not a costly matter to make the barn look attractive. Put dormer windows in the roof, and add a cornice and cupola. Paint the barn. This is necessary in any case, to preserve the building, but it adds hundreds per cent. to the appearance as well. Remember, that handsome appearance has a cash value. It is often easier to get the price asked if the purchaser is attracted by the appearance of the barn.

One Storey or Two Storey Barns

Should a dairy barn be one or two storeys? To a great extent this depends on circumstances. The one-storey dairy barn certainly has many advantages. It can be kept isolated from the stable odour and from dust and chaff. The frame does not have to be so heavy as in a two-storey building. There is, of course, no provision for feed above it. Where there is already a feed barn, accommodation for the cattle can be provided by adding the one-storey barn as shown on page 38, rather than by raising the old barn and placing the cow stable beneath it. Another advantage of the one-storey barn is that it lends itself so readily to expansion. It can be added to so easily and at such a small expense.

In remodelling an old barn which has stables beneath it which are not adequate for the size of the herd, it is best to put the steel equipment for horses, with the young stock, pens and box stalls in the old stable, and provide the space for feed room here also. A one-storey dairy barn can then be added to this to hold the cows.

The two-storey type is of course quite satisfactory. If a new barn has to be built, this is probably the most practical style on the average Canadian farm. Ceilings should be made tight, so that dust and chaff will not fall from the loft above. Hay chutes should either be built down to the floor or come down in a separate feed room, otherwise the dust will fill the stable, to the detriment of the cattle and the milk.

Framing

The "Plank Frame" construction, or else the steel truss, with the so-called "Hip" roof or Gothic roof gives a greater storage space in the mows than the heavy timber frame construction. The two types of framing are well contrasted on pages 26 and 27. The centre is open, allowing the hay carrier to work to better advantage. Where there are no cross beams to interfere, the hay can be run into the mow at just sufficient elevation to clear the hay already there. There is less labour required both in putting in and taking out the hay.

The old time "raising bees" have almost become a thing of the past since the plank frame was devised. The saving in cost of lumber is well illustrated on pages 26-27. In fact, it is becoming very difficult, and in some parts impossible, to secure sound timbers of the dimensions required for heavy timber construction.

A number of different diagrams, showing the different modern methods of framing the barn, are given throughout the following pages. Details are given of the centre bents, the end bents, the end bents and the side framing. and

an idea of the capacities of the different mows thus created is given. Steel truss barns, with steel roofing and siding are gaining rapidly in favour. This style of truss will be found on pages 44-45. It has many of the advantages of plank framing. The steel trusses come ready to erect. It is, of course, a great advantage to have trusses, roof and siding all fireproof.

Barn and Stable Doors

After deciding where the barn is to be built: the best size and shape to adopt: having settled whether it is to be one storey or two, and what method shall be used for framing the upper structure of the building, we come to a consideration of the Doors and Windows,—where they should be placed and the right sizes for them.

The best location of barn and stable doors is marked on the numerous blue print plans in this book. The following table will be useful in deciding how wide the doors should be made:—

Entrance Doors:	3 ft. x 7 ft.
or:	3 ft. 6 in. x 7 ft.
Cattle Doors:	4 ft. x 7 ft.
Double Cattle Doors:	8 ft. x 7 ft.
Horse Stable Doors:	5 ft. x 7 ft. 6 in.
Doors for Drive Floor:	12 ft. wide x 13 ft. high
or:	14 ft. wide x 14 ft. high
Gable Doors:	10 ft. wide x 12 ft. high
	12 ft. wide x 14 ft. high

Use Barn Door Track Where Practicable

Barn Door Track should be used on all doors over 4 ft. wide. Doors hung on Barn Door Track have many advantages, as fully shown by the illustrations and information on pages 340-345. They will not slam in the wind. They are not blocked by ice and snow and no paths have to be dug for them. By the use of weights they can easily be made self-closing. There is no sagging weight on the sides of the barn, and the trouble with broken hinges and damage to the walls where they are fastened is avoided.

The tube style of Barn Door Track is to be preferred to the round track. The door hangers run inside the tube, so that they are not jammed by ice, snow, dirt or birds.

The measurements given in the table above represent the size of the opening. When Barn Door Track is used, doors should be 2-in. wider on each side of the door opening and 2-in. higher than the door opening.

Gable Doors

Illustrations and instructions will be found for the proper method of hanging Gable Doors on Barn Door Track on page 344.

ELEVATION

VERTICAL SECTION

CROSS SECTION

Construction Recommended for Windows

Fig. 268—Beatty Galvanized Window Shields
(Soater)

The Windows of the Stable

The windows of the stable are a most important part of it, because it is through them that one of the greatest essentials is admitted—Sunshine. Only in recent years has the importance of sunlight to both the young and the full-grown animal been thoroughly understood.

Sunlight is a wonderful disinfectant, a great preventer of disease and a great stimulator of growth. To carry on her heavy task of producing milk, and at the same time keep herself in condition and produce healthy calves, she must get as much sunshine as possible throughout the long Winter months. If there is one thing more than another that stands out in the barns in this book, it is the amount of sunlight that floods every corner of them.

We recommend 12-light windows, made up in two sash of equal size, hinged at the middle so that the top half may drop open. A 12-light window such as the one shown on the opposite page, using 10 x 12 panes is 2-ft. 10-in. by 4-ft. 9-in. If 8 x 10 panels are used, it is 2-ft. 4-in. by 4-ft. 1-in. As a rule, four square feet of glass should be allowed for every animal in the stable. It is usually advisable, therefore, to use the 10 x 12 size. Stock sizes of window glass carried by most hardware stores are:—8 x 10; 10 x 12; 10 x 14 and 12 x 14.

The distance between the windows should average 3 feet and windows should be not less than 3 feet above the floor level. It is better to place windows with the long way up and down, not horizontally, as they will then admit more light. Splay the wall to allow the sunshine to spread and flood the stable. Bank Barns are inadvisable in this respect, because they cut off the direct sunlight on one side. After you have permitted the entrance of plenty of sunlight, do not hinder its work. Let it penetrate to every corner of the stable. In colder sections, it is wise to provide storm windows, especially if the barn is in an exposed position.

Beatty Galvanized Window Shield—Fig. 268

Beatty Window Shields are used to hold bottom hung casement sash partly open. The advantage of this type of window is that when open, the current of air is directed upwards against the ceiling and thus does not make a draught on the stock. A set of window shields consists of two shields, made of 20 gauge galvanized steel, 10 inches wide at the top and 7_8-in. wide at the bottom. These are braced and strengthened across the front by a $\frac{1}{4}$-inch steel rod. In ordering, state the height of the sash, so that shields will be made the correct length.

Ventilating the Barn

In our list of eight Essentials for a Satisfactory Barn, we noticed that Fresh Air and Dryness were two of the most important. It is because of the importance of these two factors that Ventilation is such an important element in Barn Construction. We look to ventilation to provide fresh air, and we rely upon it to a great extent in the vitally important task of keeping the stable dry.

A cow can live for six weeks without food, and for six days without water, but she cannot exist for six minutes without air. If you could measure air with a pail, as you do water or feed, the average cow would consume 7718 10-quart pails every twenty-four hours, or 5½ pails every minute. Younger stock and smaller animals require less, but horses need even more.

The life-preserving element in the air is Oxygen. When the air is inhaled some of the Oxygen is withdrawn into the blood, which in turn gives up to the air its used, stale air, which has been converted into a poisonous gas—Carbon Dioxide. Four per cent. of the air exhaled by the cow is carbon dioxide, and in twenty-four hours she will exhale 307 pails of this substance. Pure carbon dioxide is a deadly poison and no animal could exist in the pure gas for more than a moment.

Effective ventilation, therefore, must bring to the cow an unfailing supply of fresh air, every hour of the day or night, and must remove with equal facility the carbon dioxide. In addition to this, it has a most important function to perform in removing moisture from the stable. Every breath exhaled by man or beast contains moisture. It is estimated that in twenty-four hours a cow will give off 1 2/5 gals. of water in the form of water vapour in her breath. If the moist air is not removed, the stable atmosphere is super-saturated with damp vapour which is not only harmful to the animals but rots the wood work.

Good ventilation prevents the formation of ammonium carbonate. This compound results from the union of the carbon dioxide in the air of a poorly ventilated stable with the ammonium fumes given off by the manure. It falls as a whitish coating on the woodwork, beams and harness, where it rots both the wood and the leather.

We would say of fresh air, however, as we said of sunlight,—having permitted the entrance of plenty of fresh air, pure air, do not hinder its work. Avoid as far as possible all walls and solid partitions, which impede the circulation of the air currents and spoil the efficiency of the ventilating system.

Systems of Ventilation

Ventilation is hardly ever satisfactory unless it is run on a system. There must be a certain number of inlets for the fresh air, and a proportionate number of outlets for the stale air. These inlets and outlets must have an area suited to the number of animals in the stable. They must, moreover, be placed correctly, so that the air currents will reach the whole stable.

It is easy to see that under such circumstances, enough air will not get in by accidental means. It must be controlled. It is not practical to rely on the doors for this purpose. On the first cold day these are slammed tightly shut, whereas the cows need that fresh air just as much when the temperature is below zero as when it is a nice warm day. The windows are not to be depended upon for ventilation either. They are primarily for use to keep the stable cool in warm weather.

The two systems in most common use on the North American Continent are known as the Rutherford and King Systems, from the names of their originators.

The Rutherford System works on the same principle as the kitchen stove. In the stove you open a damper at the bottom. This allows a draught to pass into the fire and the oxygen in the air allows the fire to burn. The carbon dioxide and other gases are formed. These are hot, and lighter than air, so they rise and pass out of the chimney.

The Rutherford Ventilation System is based on this old, simple idea. Fresh air is admitted near the floor. The animals breathe out warm air and this, with their body heat, raises the temperature of the stable. The warm, stale air, carrying the carbon dioxide and moisture, rises to the ceiling and is carried off through outlets in the stable ceiling which lead through to the peak of the roof. As fast as this warm, stale air is carried off, it is replaced by the fresh air supplied through the inlets in the stable walls.

For the efficient working of this system, three things are necessary. The stable must contain approximately the right number of cubic feet of air space per animal. The inlets and outlets must also be in proportion to the number of animals in the stable, and to one another. The outlets and inlets must be properly built and correctly placed. Detailed information along these lines will be found on pages 20 and 21.

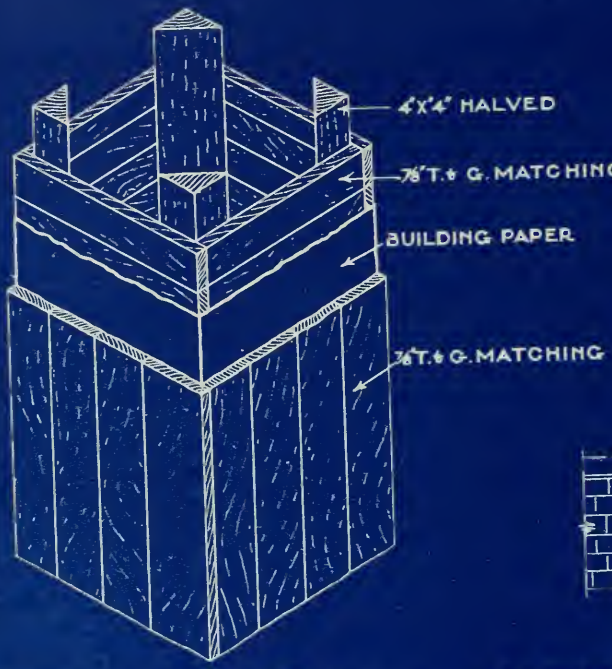
Those who favour the King System hold that stale air, being charged with a gas that is heavier than air, (carbon dioxide) should be taken off at the floor of the stable, and not at the ceiling. Therefore, they bring in the fresh air at the ceiling and allow the stale air to escape through ventilators that are built down to within a few inches of the stable floors. The air in the outlets, they contend, is warmer than the air outside and must, therefore, rise.

Advantages of the Rutherford System

The Rutherford System is simpler and less expensive. Intakes are not costly. The ventilating flues for the stale air can be built quite inexpensively and a neat cupola, costing only a few cents, can be framed to prevent snow or rain from entering the flue.

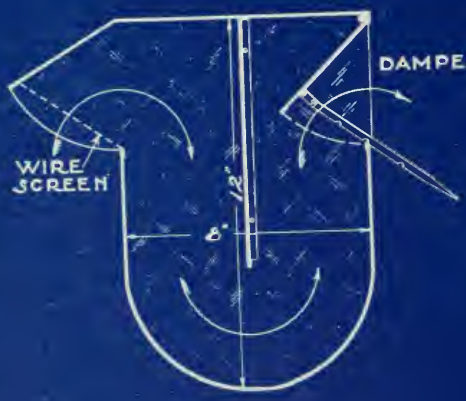
The King System, on the other hand, calls for expensive and specially constructed cupolas. The outlets required for the King System, as stated above, come down close to the stable floors, so that they take up valuable space in the stable.

The Rutherford System will work well every day in the year and under any climatic conditions. The King System has proved unsatisfactory in cold climates. There is great danger that, unless a strong wind is blowing, the air current will be sluggish. It is necessary to force an air current by artificial means, and it is for this purpose that the costly cupola is required. In Canada, the King System does not rid the barn of the humid air. There is condensation of moisture on the ceiling and constant dripping. One reason for this is that moist air is always warm. It is therefore light, and rises. The outlets of the Rutherford System, being at the ceiling, carry it off freely. With the King System, which seeks to ventilate the stable

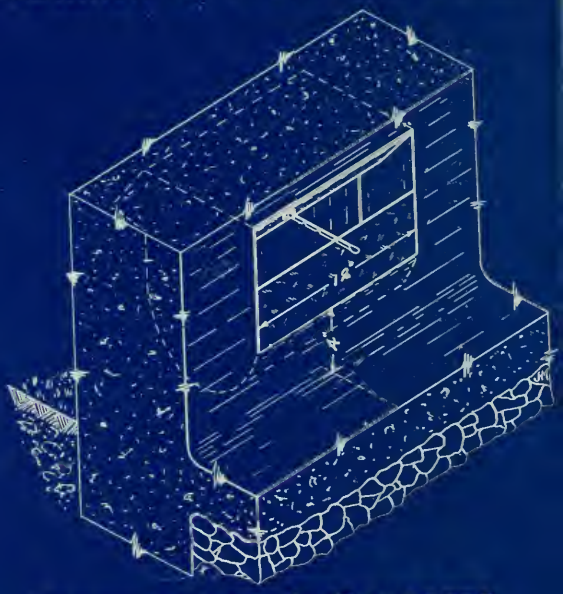


FOUL AIR SHAFT DETAILS

ELEVATION OF VENTILATING OUTLET



SECTION OF FRESH AIR INLET



FRESH AIR INLET IN CONCRETE

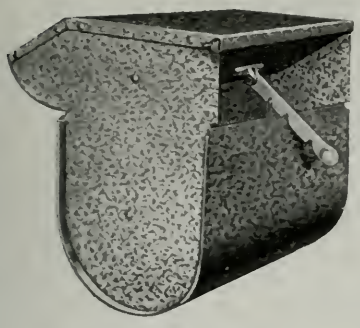


Fig. 445 (Shabby)
Beatty Fresh Air Inlet

Fig. 604 (Vacant)
Fresh Air Inlet for Wood Walls

by lifting the stale air from the floor, there is no place for the escape of any moist air that rises to the ceiling.

Moist air is as hard on animals as stale air. They cannot stand within ten degrees as much cold in a damp stable as in a dry one. Dampness is one of the chief causes of tuberculosis.

Ventilation Tables

The Rutherford System of ventilation works best when 600 cubic feet of air space are allowed to each full-grown animal in the stable. Horses will take a little more and younger, smaller stock a little less. If this amount is reduced, it is difficult to ventilate without harmful draughts, and if increased, it is difficult to keep the stable warm enough.

Bearing these requirements in mind, we shall obtain best results by allowing eight square inches of inlet area and 15 square inches of outlet area for each animal. One Beatty Fresh Air Inlet will do for six cows and one 18-in. x 18-in. outlet will do for twenty cows.

In planning for ventilation, remember that 60 degrees Fahrenheit is the temperature most suitable for a dairy stable. In this connection, read the information on walls, given on pages 63 and 64, because the construction of the walls will have much to do with the temperature of the stable, and also, we might add, with its dryness.

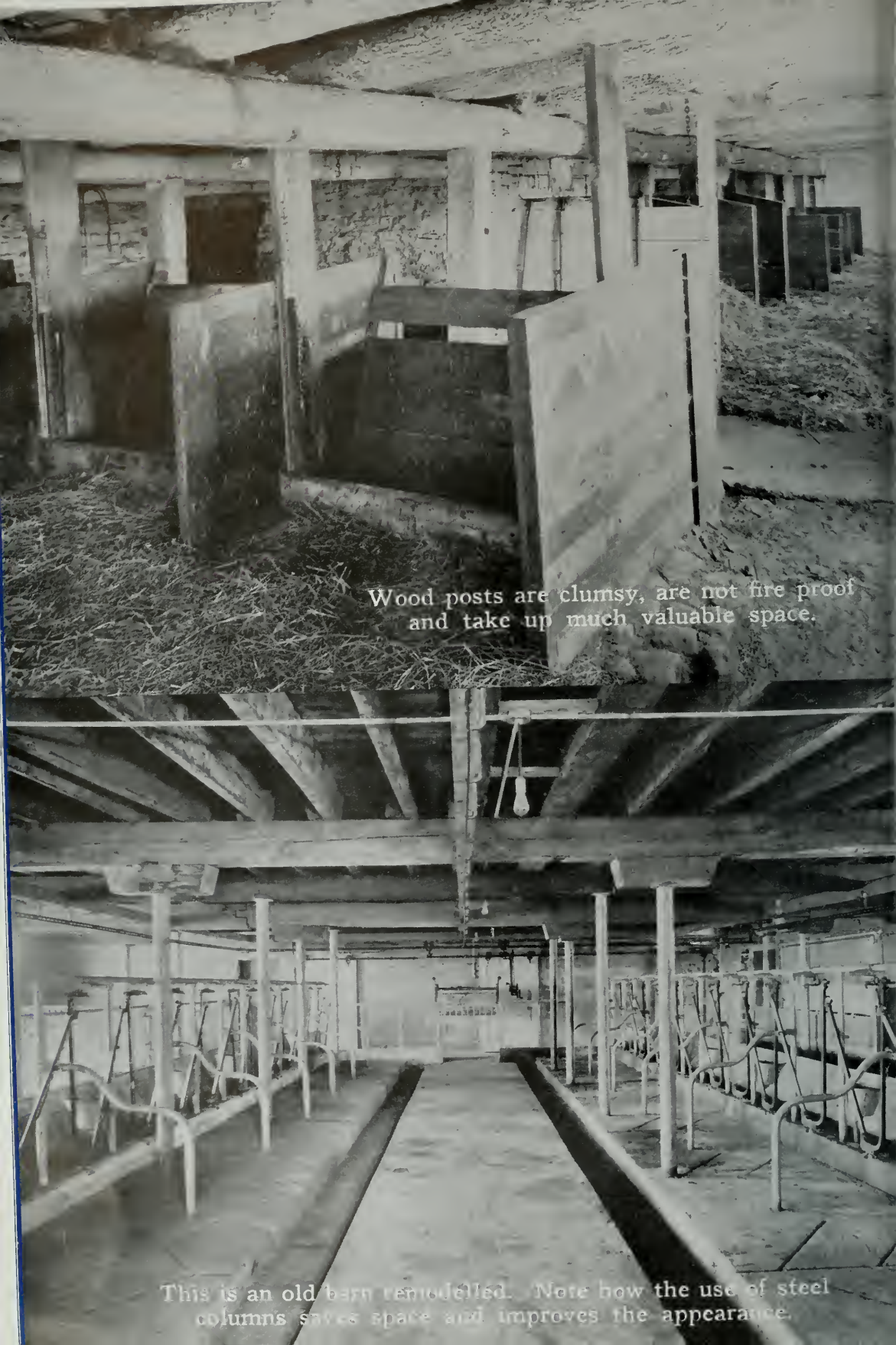
Ceilings should be ceiled over underneath the joists.

Note carefully the construction of the Foul Air Shaft on the opposite page. This shaft should have all the characteristics of a good chimney. It should be an air-tight flue, constructed of two layers of tongued and grooved material with building paper between. It should be provided with a damper, operated by cords so that the amount of the draught can be controlled.

The construction and use of Beatty Fresh Air Inlets are well illustrated on this and the opposite page. It has a maximum inlet area of 48 square inches, which may be lessened if desired, and is not enough to cause injurious draughts. A hood on the outside prevents snow from drifting in and a screen keeps out insects or vermin. The dampers allow the inlet area to be regulated according to the number of animals in the stable.

The amount of inlet and outlet area required for different kinds of stock are given below:—

Stock	Inlet Area Per Head	Outlet Area Per Head	Number Supplied by 1 Beatty Ventilator
Horse	9½ sq. ins.	18 sq. ins.	5
Cow	8 sq. ins.	15 sq. ins.	6
Hog	4 sq. ins.	8 sq. ins.	12
Sheep	2½ sq. ins.	5 sq. ins.	18

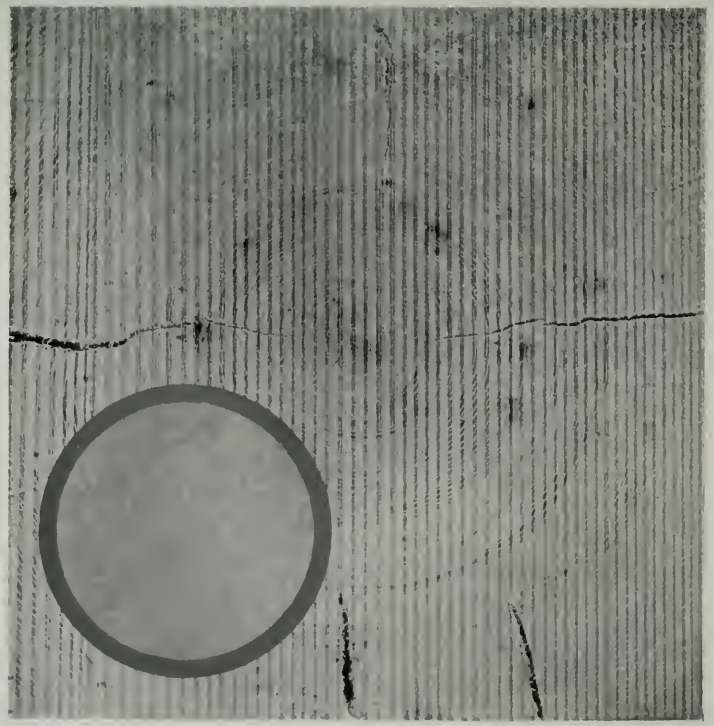


Wood posts are clumsy, are not fire proof and take up much valuable space.

This is an old barn remodelled. Note how the use of steel columns saves space and improves the appearance.

Protection Ring

If Beatty Supporting Columns are filled with concrete, they will carry one-third more weight. They will also stand up in case of fire and keep the burning timbers from falling. Note the cast iron protection ring which protects the columns from manure acids at the floor line.



This illustration shows the relative dimensions of an 8" x 8" wood post and a 3½" Beatty Supporting Column. The steel column will support the same weight as the clumsy wood post, without obstructing light and taking up valuable space in the stable. The steel column is more sanitary, more durable, more fireproof and cheaper in the long run.

Cap and Base for BT Base Supporting Columns

Fig. 422
Cap for Supporting Columns

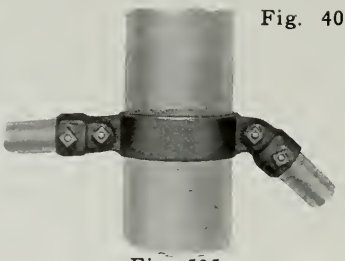


Fig. 535
BT Post-to-Column-to-Partition Clamp

Fig. 423
for Supporting Columns

Fig. 405—Column-in-Headrail Clamp

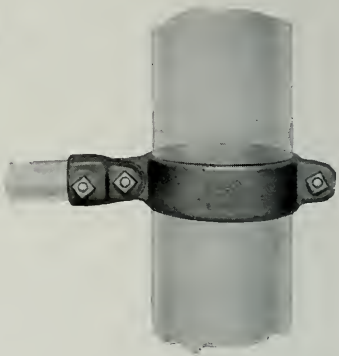


Fig. 414
BT Partition-to-Column Clamp

Beatty Supporting Column—Fig. 421

Heavy wood posts obstruct sunlight and look out of place in a steel-equipped stable. They take up valuable room in the stable, no matter where they are placed.

They are a nuisance if placed in the passages and they restrict the freedom and comfort of the cows when placed anywhere in the cattle stands.

Wood posts are not durable. Cement floors soon rot them. They are quickly destroyed in case of fire. Sooner or later they are rotted by the manure, stable acids and moisture.

From the standpoint of sanitation, they have all the disadvantages of the old-fashioned wood stall. They are not clean, and no amount of time and work will keep them as clean and sanitary as the steel. They spoil the appearance of any stable.

We urge you to start your sanitary steel equipment by using Beatty Steel Supporting Columns. A glance at the illustrations in this book will bring out their many advantages more forcefully than can be done by words. They are just as important in making your stable up-to-date as the steel stalls. Beatty Columns are carried in stock in 7-ft., 7-ft. 6-ins., 8-ft., and 8-ft. 6-ins. lengths in the three sizes, 3½, 4½ and 5½ ins. diam.

Strength of Beatty Columns

Any Beatty Steel Column is quite as strong as a wood post three times its size. The loads which any Beatty Column will support are given below.

Nominal Outside Size Inches	Weight per foot	Safe Load in Pounds for Beatty Steel Columns			
		7 feet	8 feet	9 feet	10 feet
3½	9.05	24540	23200	21880	20540
4½	12.49	38000	36540	35080	23620
5½	14.56	54200	52600	51020	49420

If desired, columns may be filled with concrete and will then carry a third more weight. It is simply necessary to plug the end of the column, tip up the other end and pour in thin concrete, made with screened gravel.

Floor Line Protection Rings for Beatty Steel Columns

Every Beatty Column is protected against corrosion. Page 23 illustrates the Beatty Protection Rings used at the floor line of Beatty Columns. These heavy cast iron rings encircle the column at the floor line. They extend into the floor a distance of one inch and above the floor, four inches.

They keep stable liquids, soakage from manure and other causes of rust away from the column and easily triple the life of the steel supporting columns. Many of the best architects and engineers now specify cast metal protection rings and flanges for steel supporting columns. All Beatty Columns, including the Protection Rings, are hot galvanized, inside and out.

Caps and Bases

These are used with Beatty Steel Supporting Columns and it is very important to have them.

The Caps, Fig. 422, are fitted with aligning flanges on both sides which keep the beam lined up over the centre of the column. As shown in the illustration, smaller flanges called tying flanges, run across the cap. These should be mortised into the beams, and thus, when two beams meet, will tie them solidly together.

The Circular Base, Fig. 423, is embedded in the concrete. Its purpose is to distribute the weight evenly over the concrete footings, so there is no danger of cracking. In estimating the lengths of supporting columns, it is necessary to deduct the thickness of caps and bases. Thicknesses of these are as follows:—

Size of Cap or Base	6-inch	8-inch	10-inch	12-inch
Thickness of Cap or Base	½-inch	⅝-inch	¾-inch	⅞-inch

Beatty Columns are Hot Galvanized, inside and out.

Positions of Columns

The positions of the supporting columns are determined by the positions of the beams or girders.

According to stock lengths of joists, girders are from ten to fourteen feet apart across the stable. When the cows face in, the best position for the supporting columns is in the partitions, 9 inches behind the head rail, the measurement being taken from centre of stall post to centre of column.

It is far easier to attach lifting manger divisions or water bowls, when the posts are arranged in this way. In addition to this, they do not break the line of the headrail nor take up valuable space in the stall. The columns come at the narrow part of the cow where there is plenty of room.

The distance that the columns should be placed apart lengthwise of the stable is determined by many factors. The size and strength of the girder to be supported; the weight that the girder has to carry and the widths of the cow stalls, all have a bearing on this point.

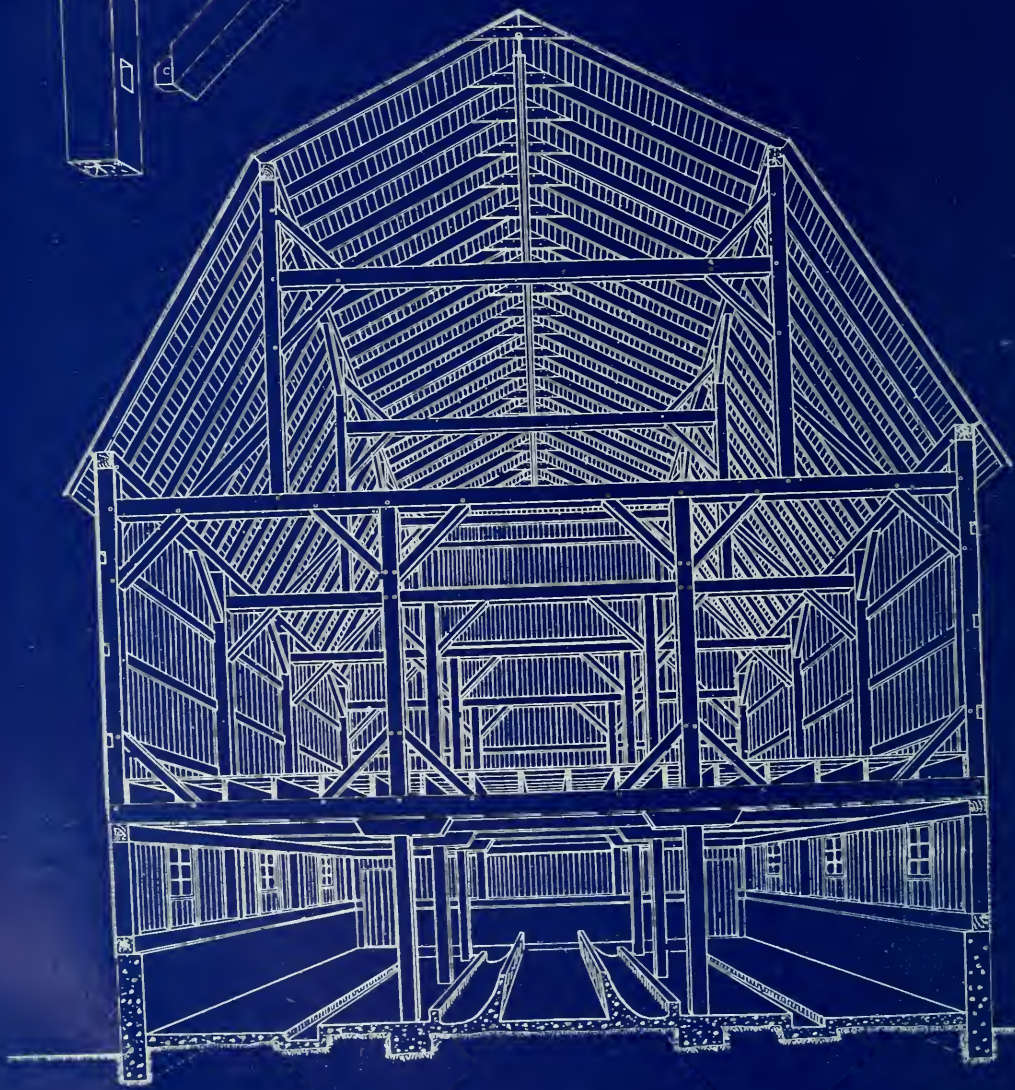
With the average two-storey barn, it is advisable to have the columns not over 14 feet apart. Where there is an exceptional load, such as a granary, the columns should be closer. A good general rule is one column every third stall.

Heavy Timber Frame Construction

Mortise and Tenon Connections

1266 Board Feet per Truss
at $70.00 per thousand $ 88.62
9 Trusses for 100 ft. Barn $797.58

Takes a Whole Gang of Men to Build It



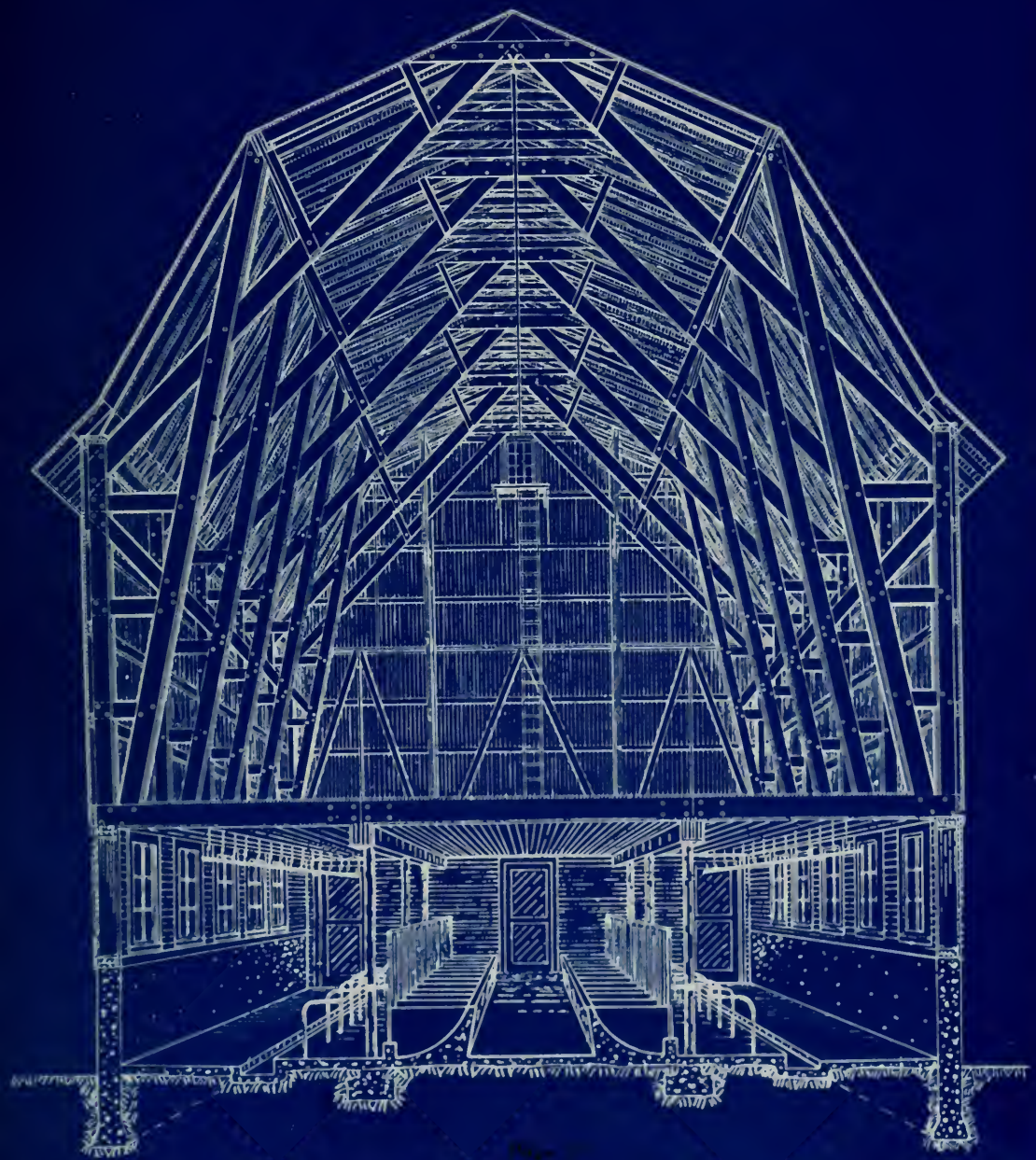
Plank Frame Construction

706 Board Feet per Truss
at $47.00 per thousand $ 33.18

9 Trusses for 100 ft. Barn $298.64
Net Saving in Lumber $498.94

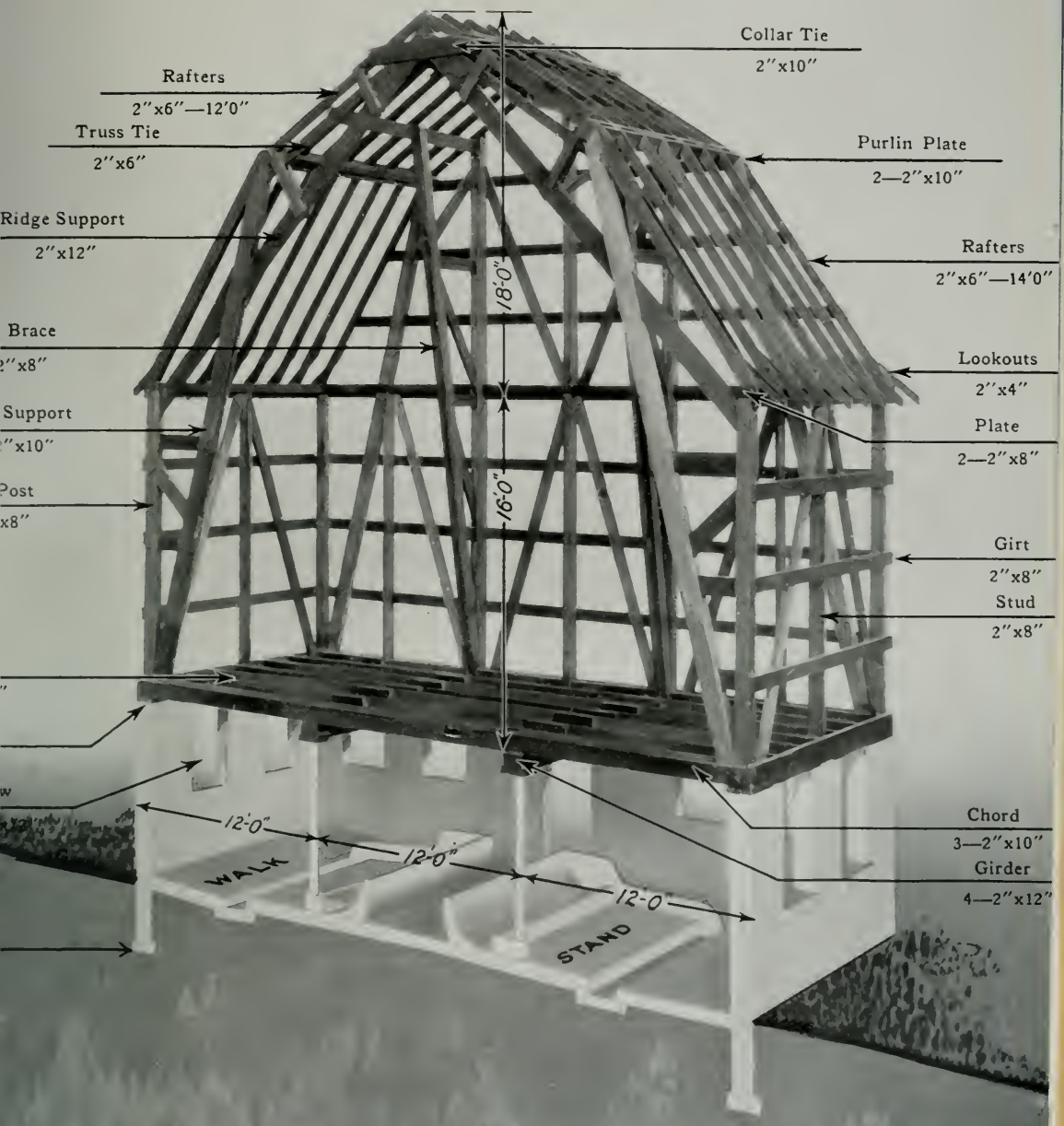
Two or Three Men can Erect It

Note handiness of open Construction for use of Hay Carrier



Erecting Barn of Mr. J. L. Atkinson, Kilgard, B.C.

Barn of R. J. Fleming
Donlands, Ont.

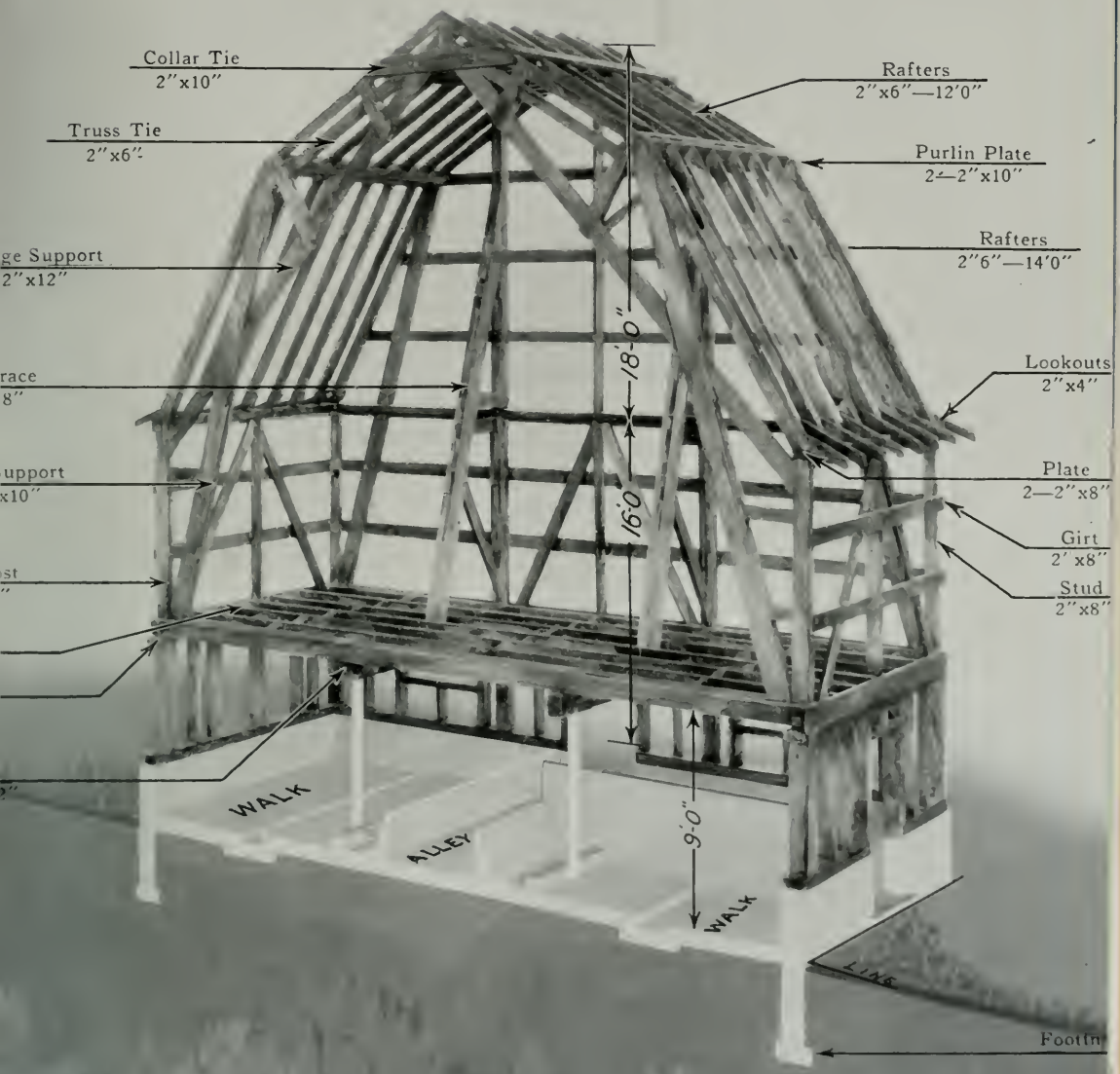


Capacity of Barn per 10 ft. of mow—18 tons

Plank Frame Construction

16'0" Post on 9'0" Concrete Wall

Barn of Byron McCaw,
Smith's Falls, Ont.

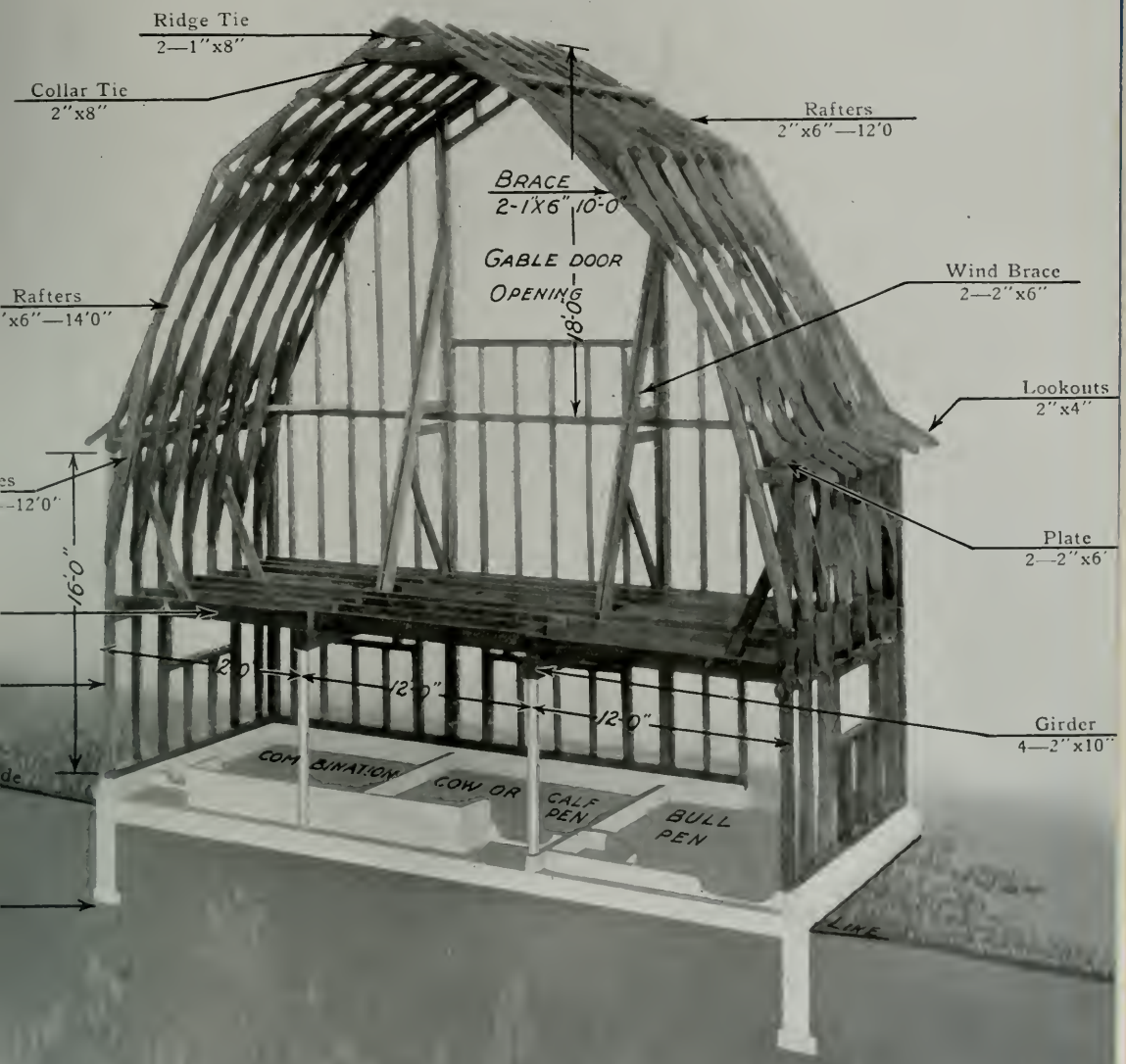


Capacity of Barn per 10 ft. of mow—14 tons

Plank Frame Construction

16'0" Post to Window Sills

Barn of D. B. McLaren
Roland, Man.

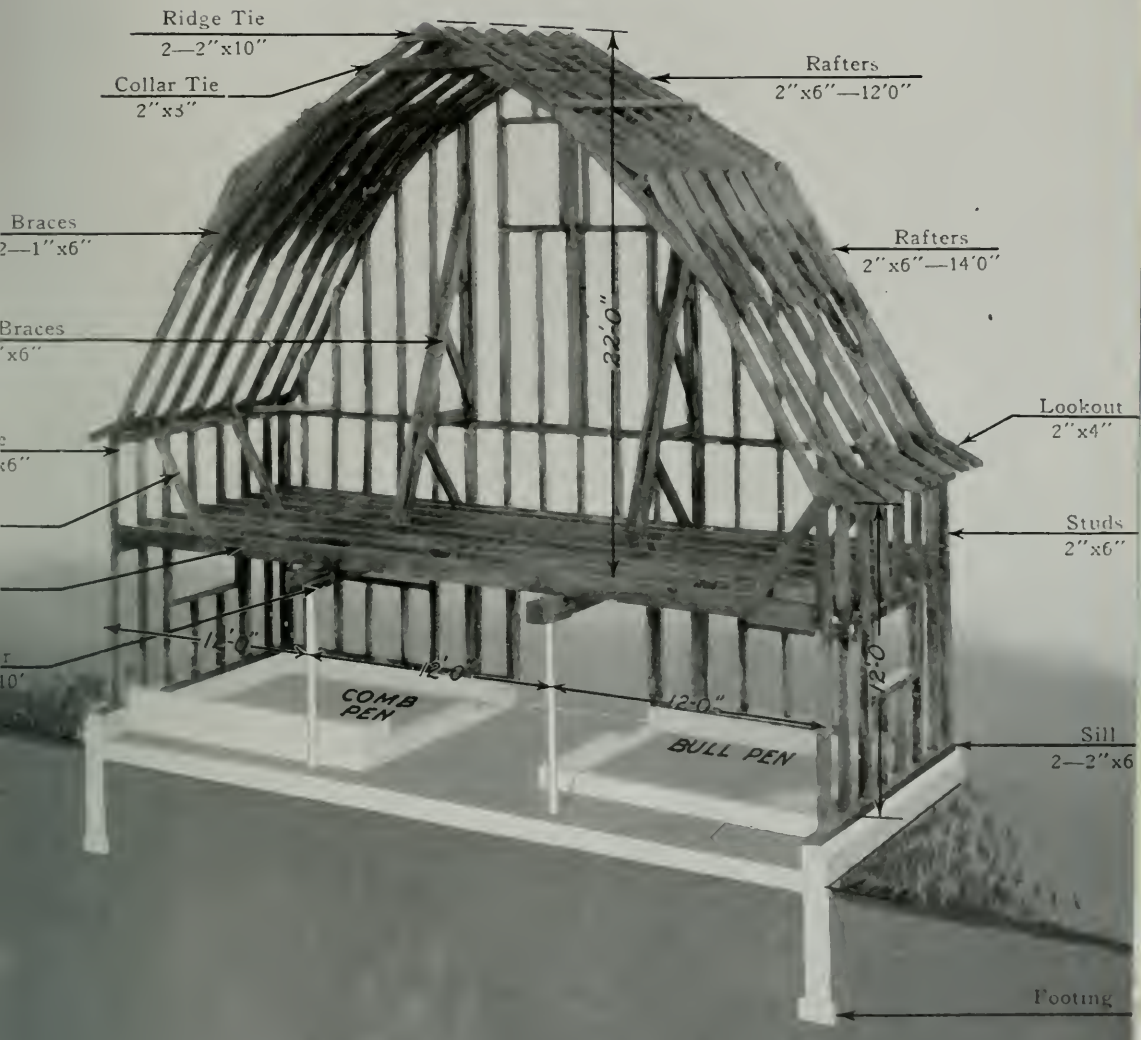


Capacity of Barn per 10 ft. of mow—12½ tons approx.

Braced Rafter Construction

16'0" Post to Foundation

Barn of Parkdale Farm Dairy
(W. L. Parrish, prop.).
Winnipeg, Man.

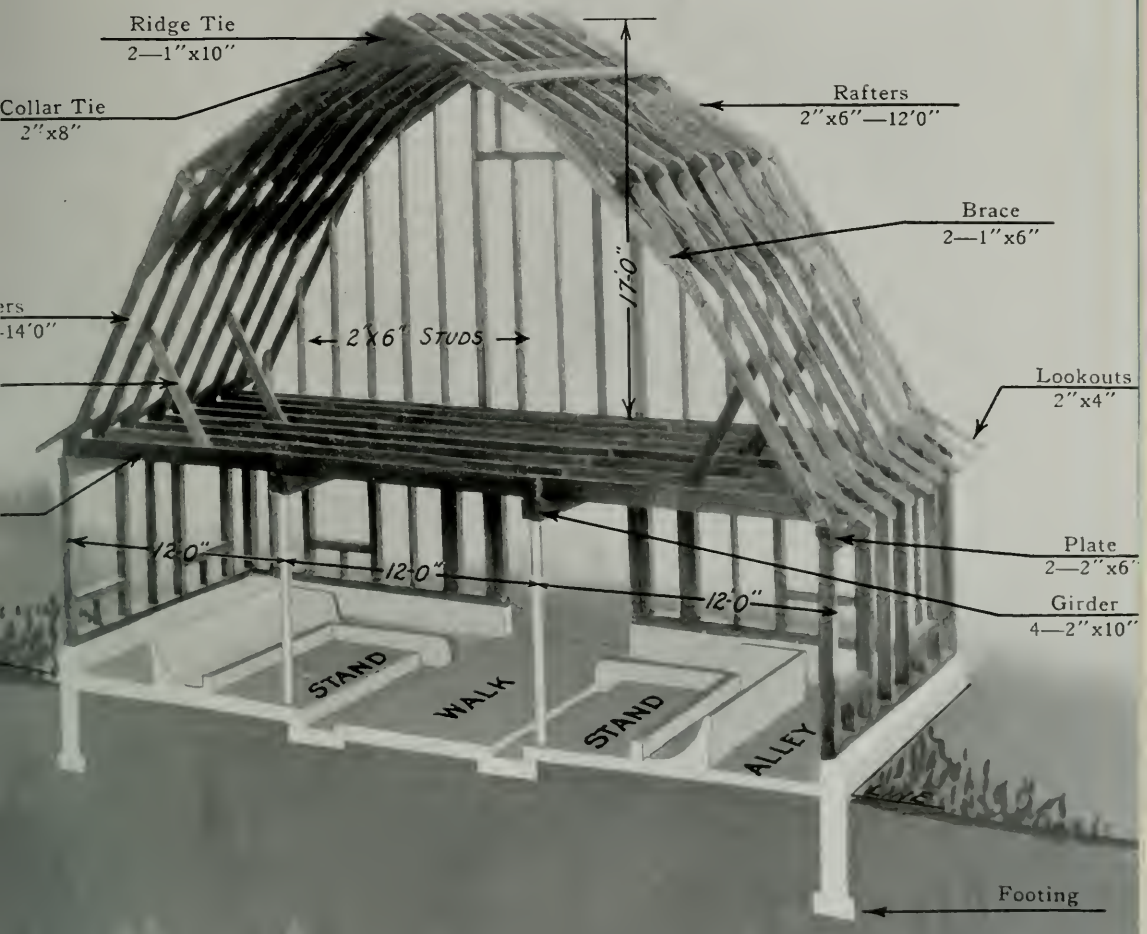


Capacity of Barn per 10 ft. of mow—9½ tons

Braced Rafter Construction

12'0" Post to Foundation

Barn of Edward Denville, Chilliwack, B. C.

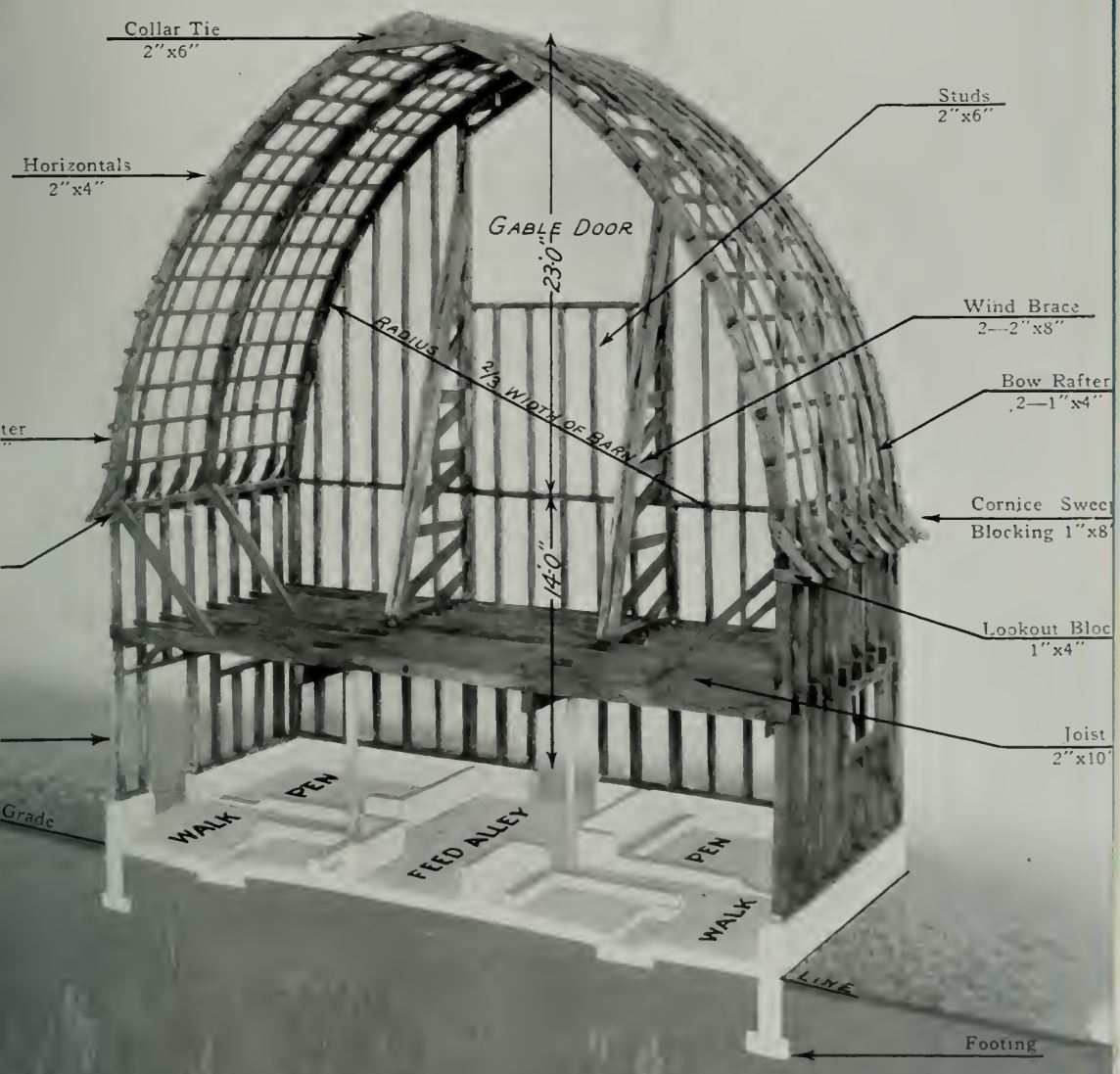


Capacity of Barn per 10 ft. of mow—6 tons approx.

Storey-and-a-Half

Braced Rafter Construction

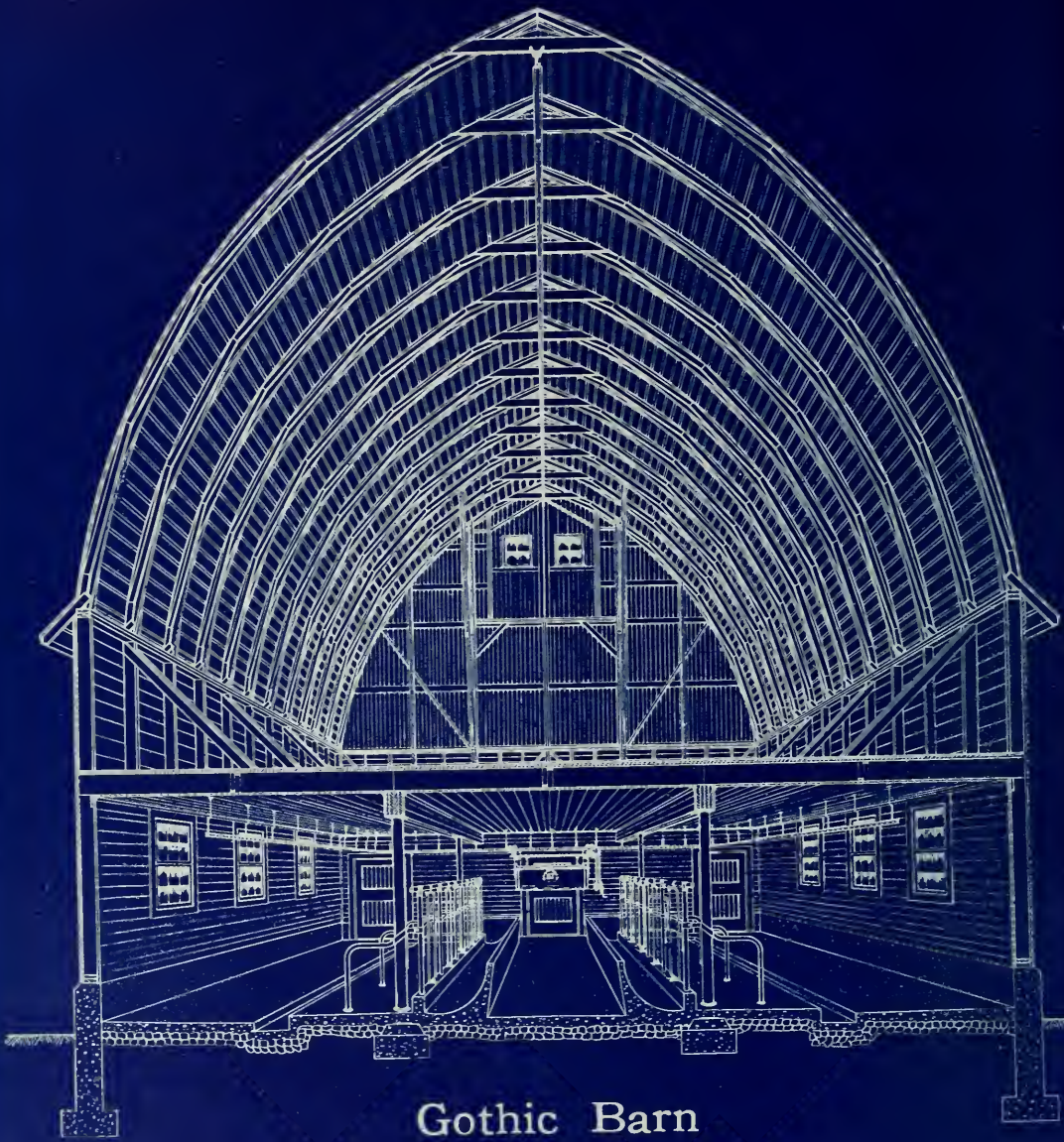
Barn of Andrew Graham & Son
Portage la Prairie, Manitoba, Man.



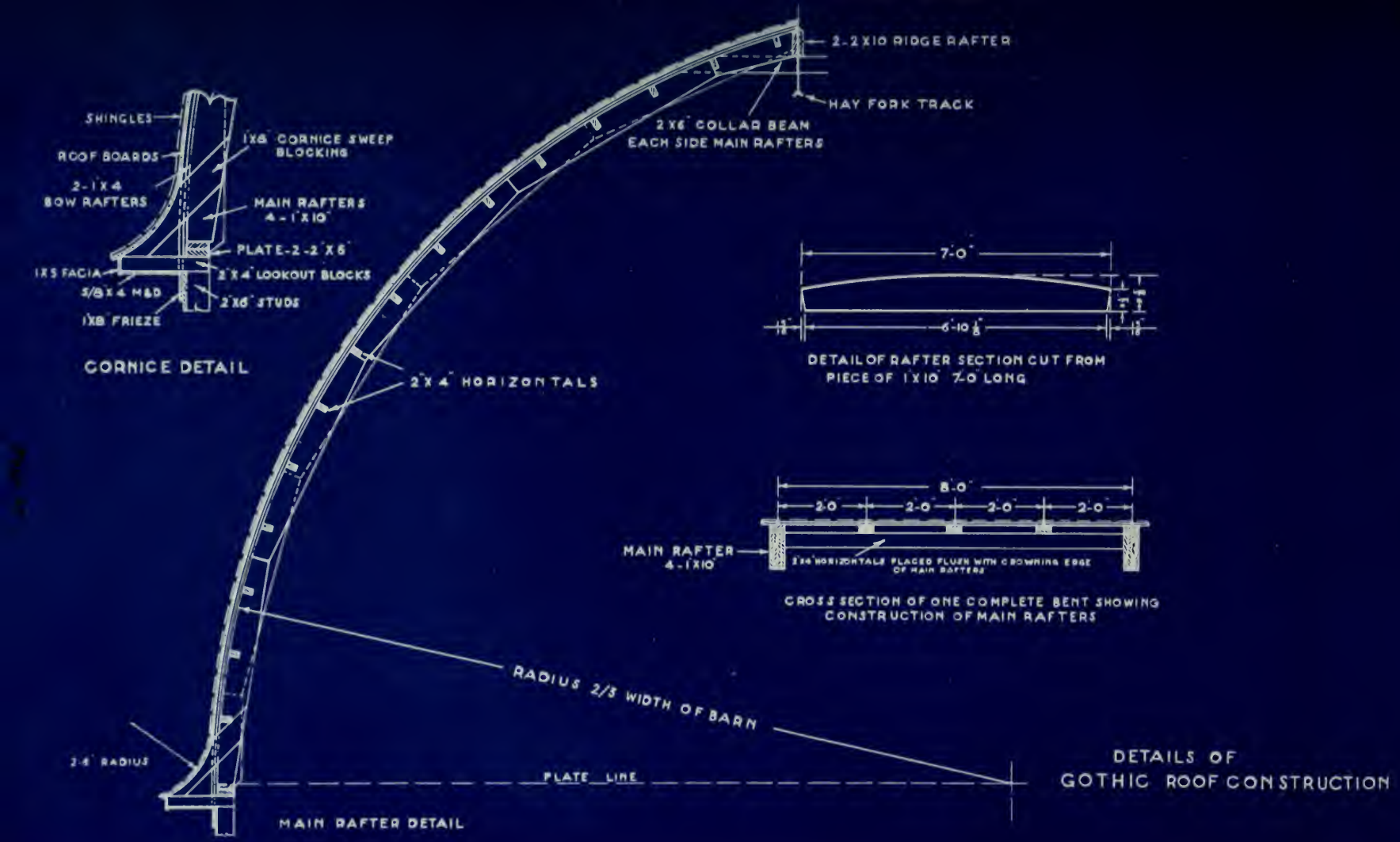
Capacity of Barn per 10 ft. of mow—15 tons

Gothic Roof Construction

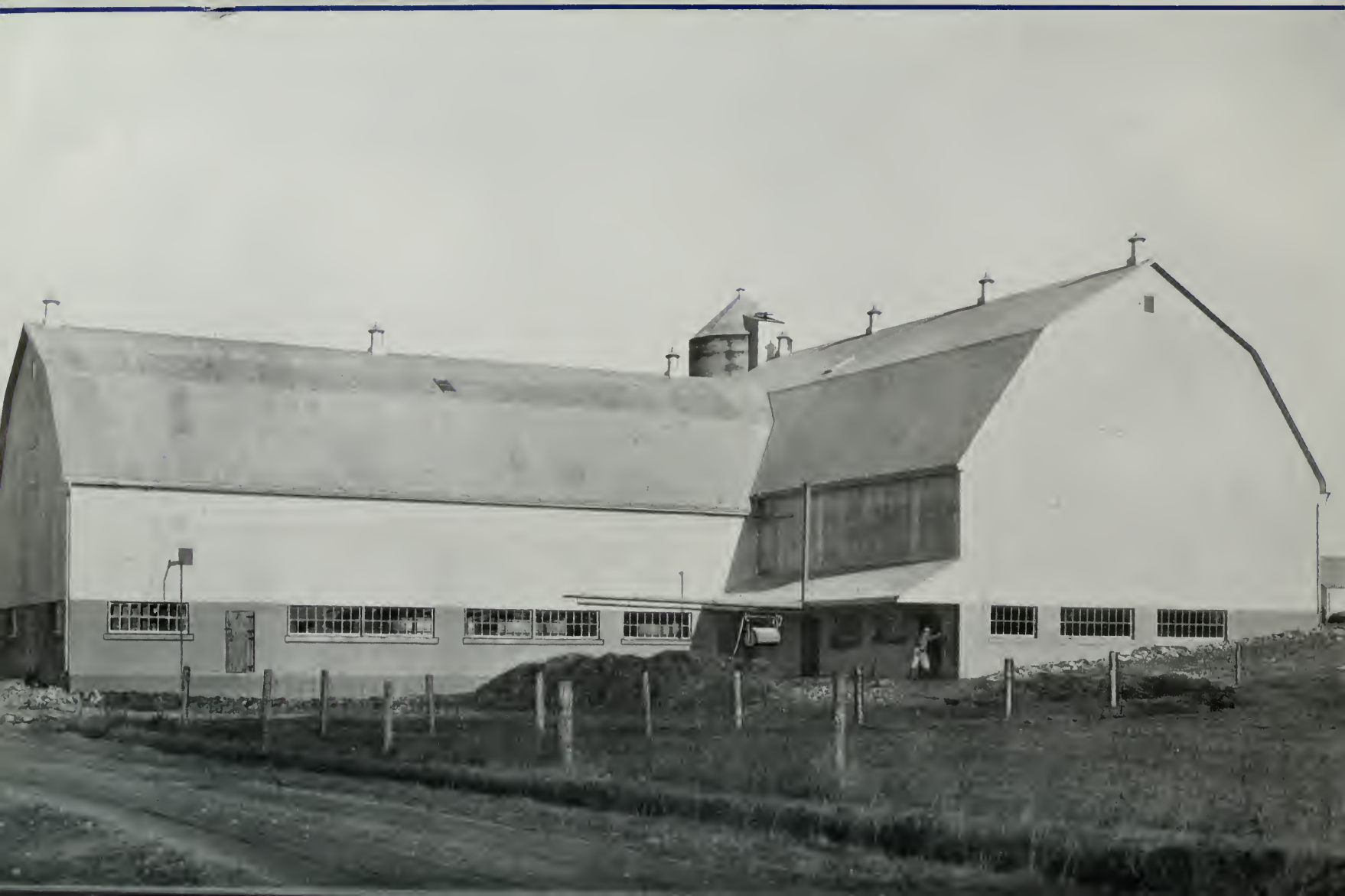
14'0" Post to Foundation



Gothic Barn

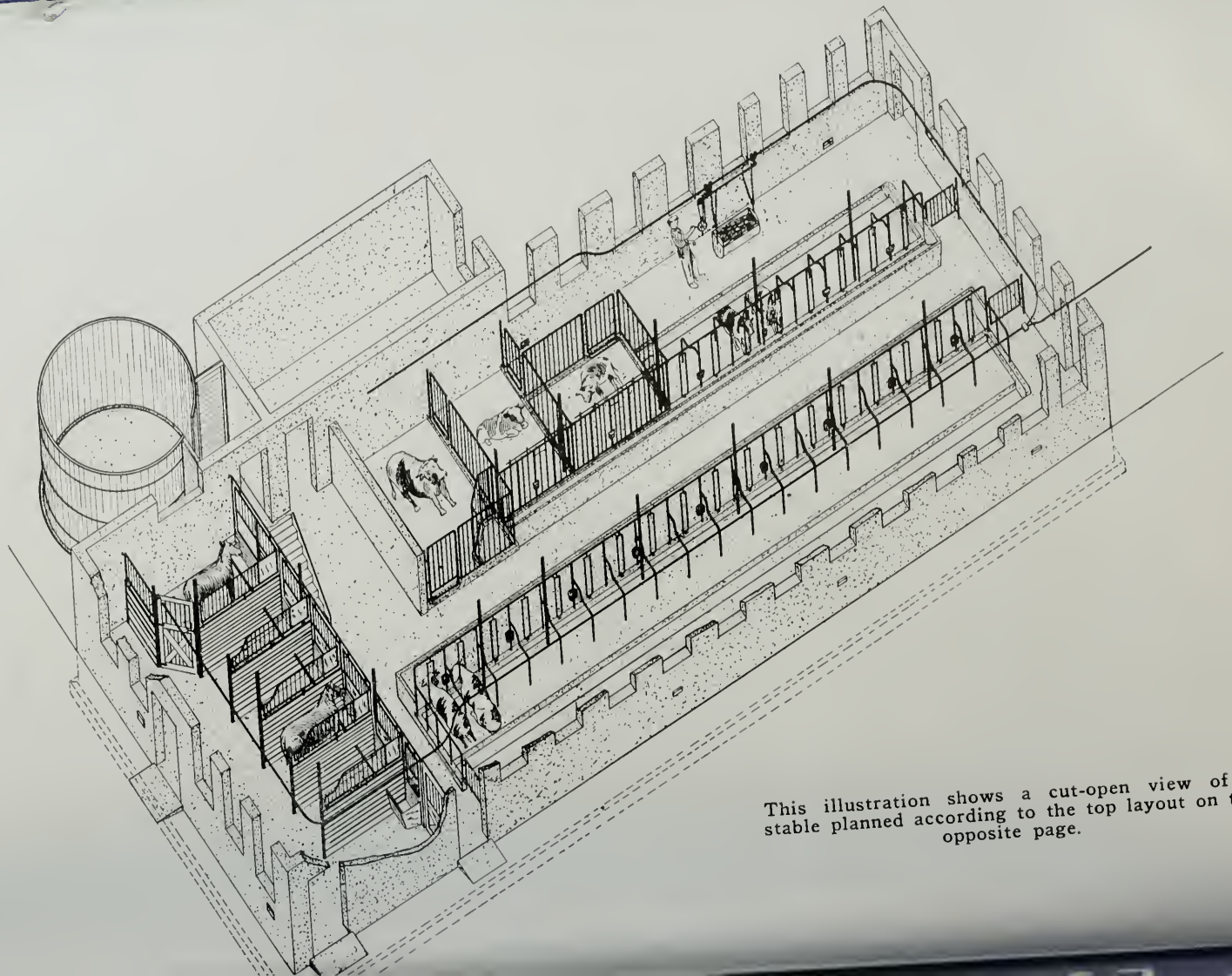


DETAILS OF GOTHIC ROOF CONSTRUCTION

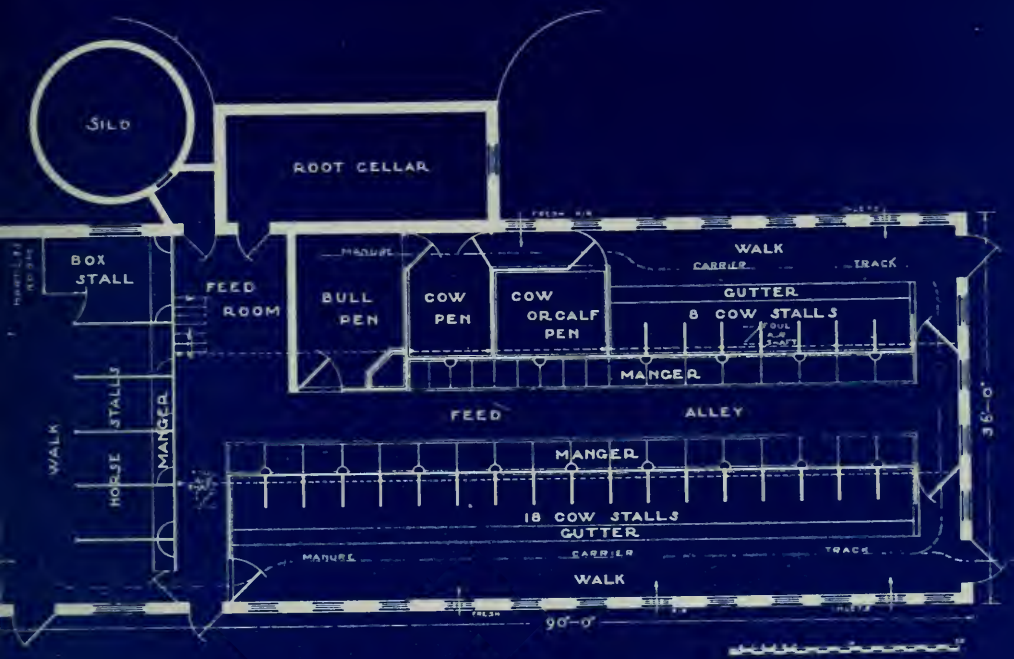


STEEL TRUSS BARN

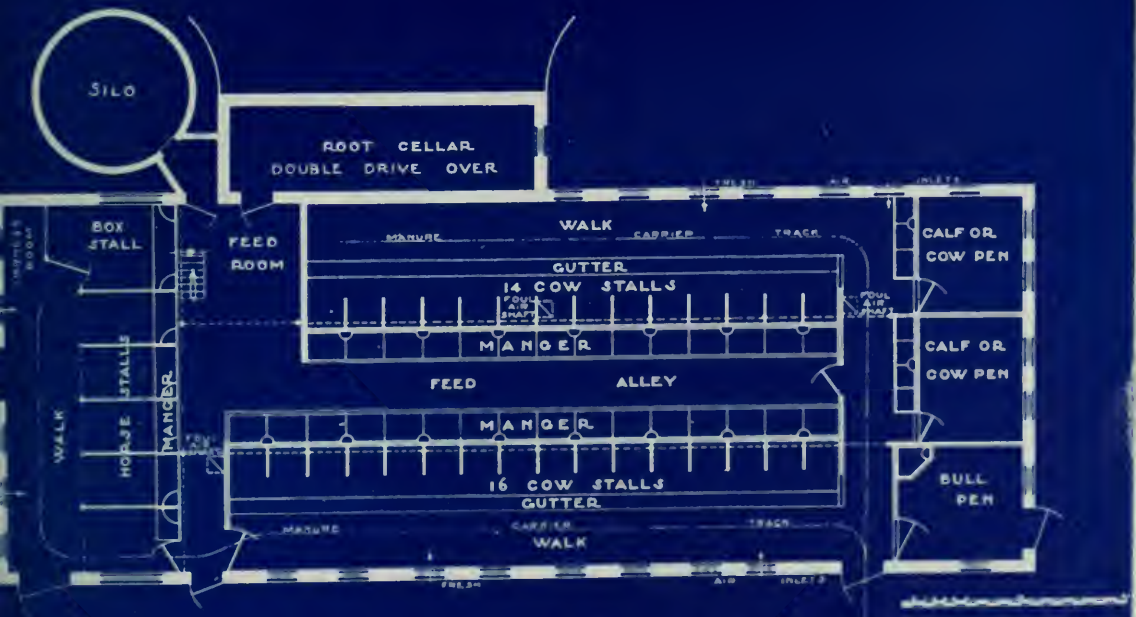
(Courtesy Eastern Steel Products, Preston, Ont.)



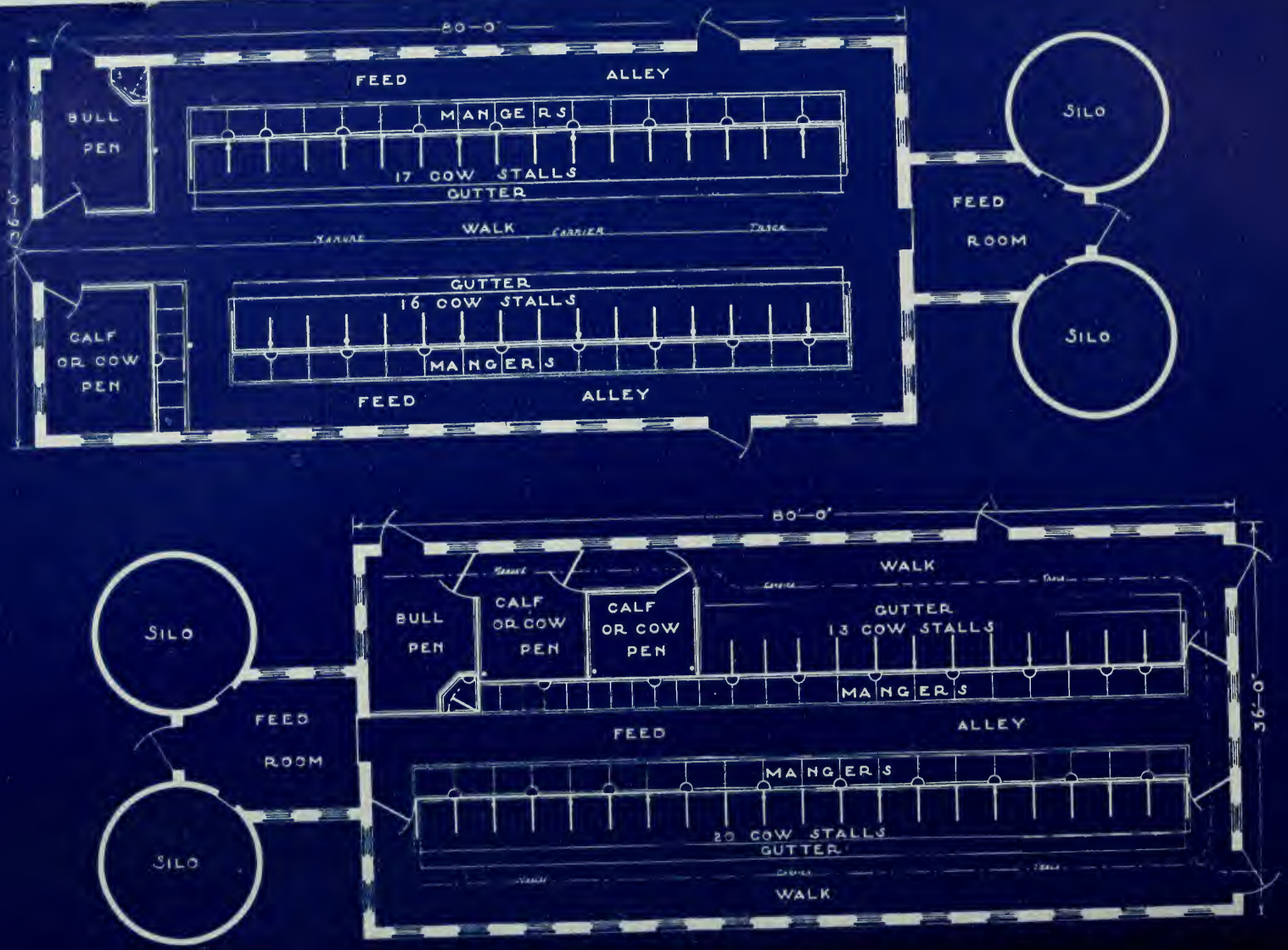
This illustration shows a cut-open view of a stable planned according to the top layout on the opposite page.

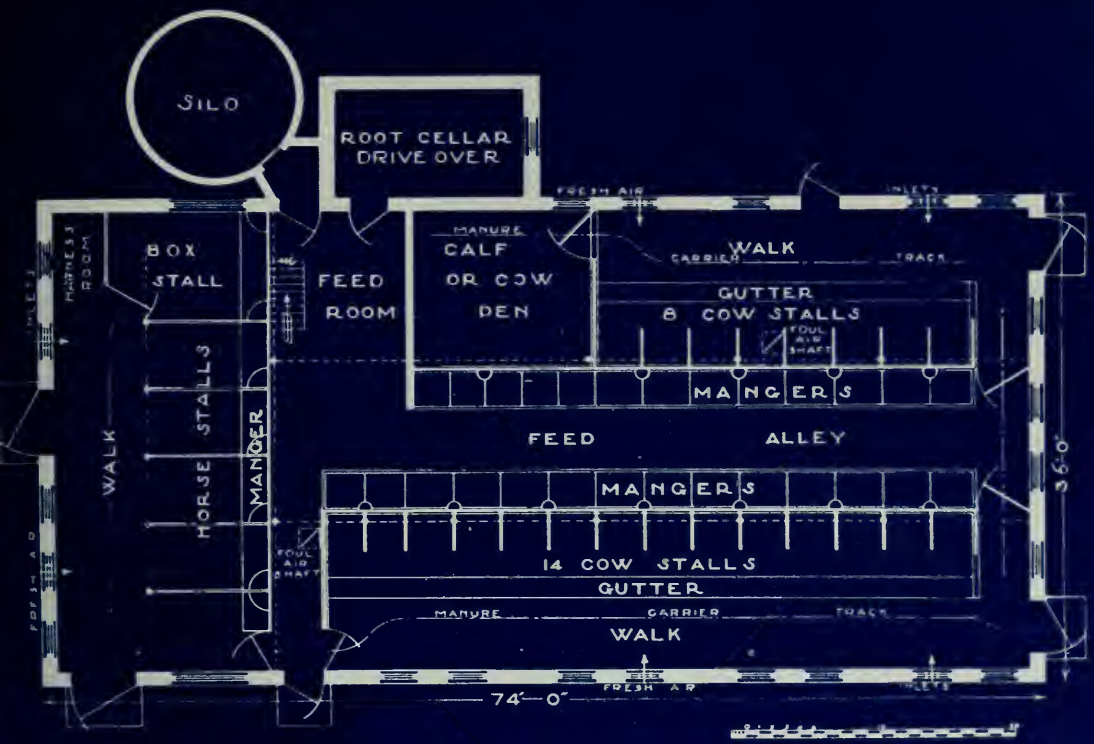


An Ideal Layout for any General Purpose Barn
No Waste Space or Lost Steps in This Plan
See Illustration of Stable interior on opposite page, arranged the same as above

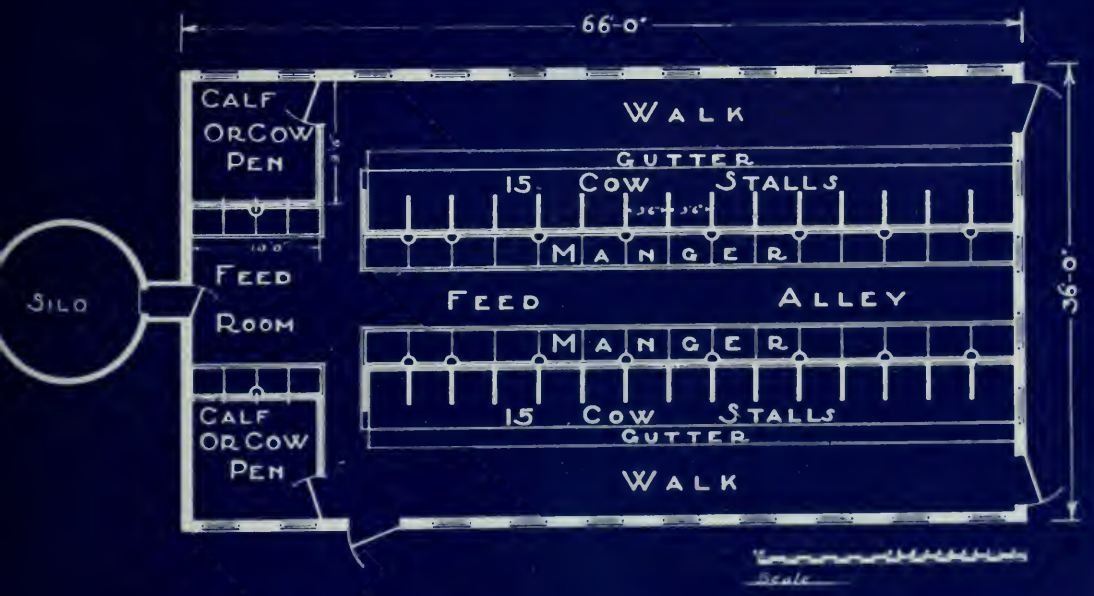


Another Good Layout for this Type of Construction

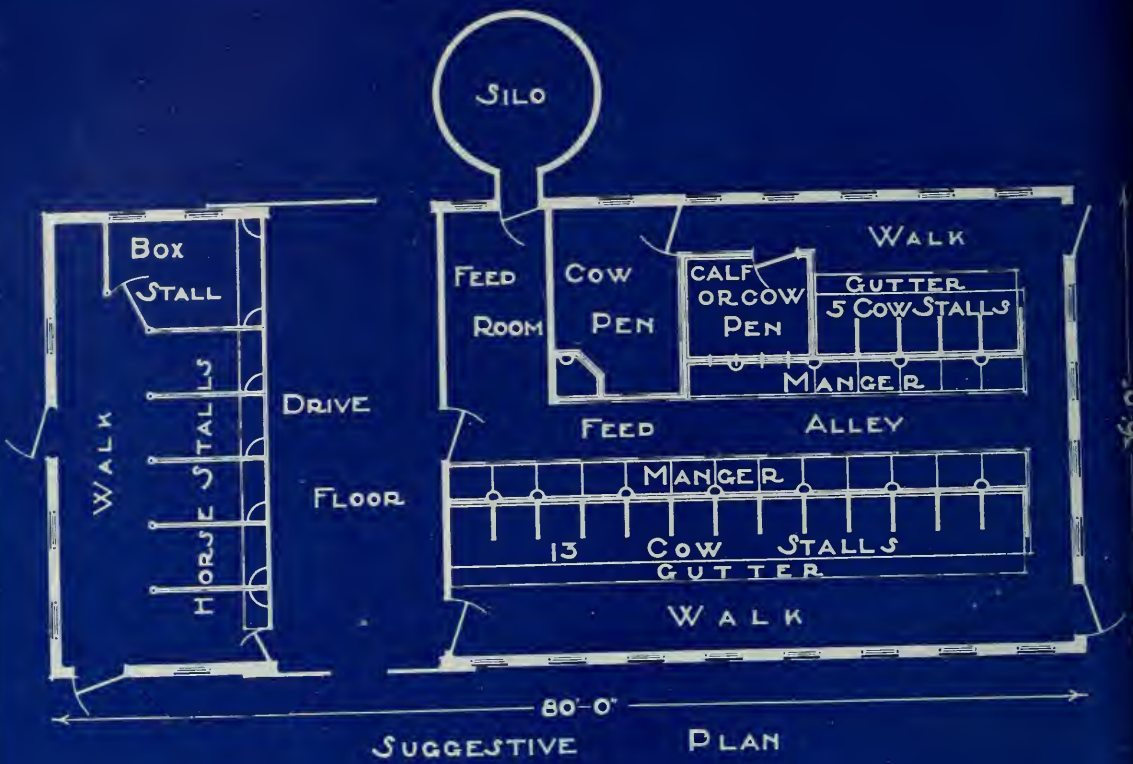

80'-0"
FEED
ALLEY
BULL PEN
MANGERS
17 COW STALLS
GUTTER
WALK
GUTTER
16 COW STALLS
MANGERS
CALF OR COW PEN
FEED
ALLEY
SILO
FEED ROOM
SILO
36'-0"
80'-0"
WALK
BULL PEN
CALF OR COW PEN
CALF OR COW PEN
GUTTER
13 COW STALLS
MANGERS
FEED
ALLEY
MANGERS
20 COW STALLS
GUTTER
WALK
SILO
FEED ROOM
SILO
36'-0"



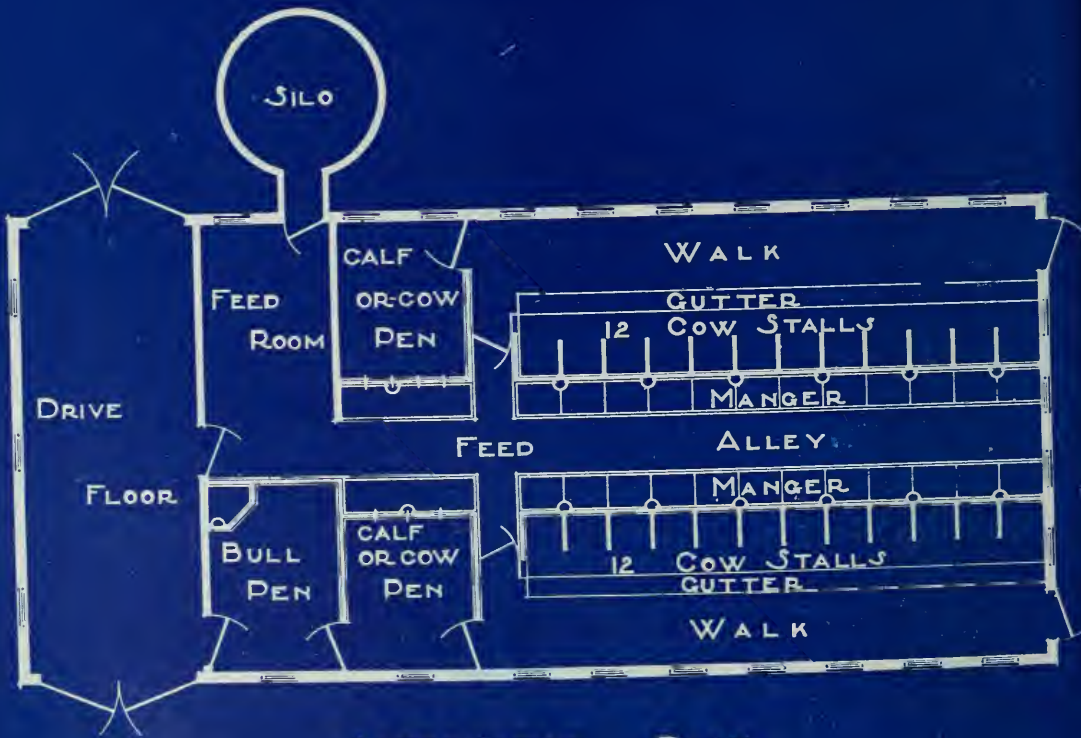
General Purpose Plan for 100 Acre Eastern Canada Barn



A Suitable Small Plan for Storey and a half construction

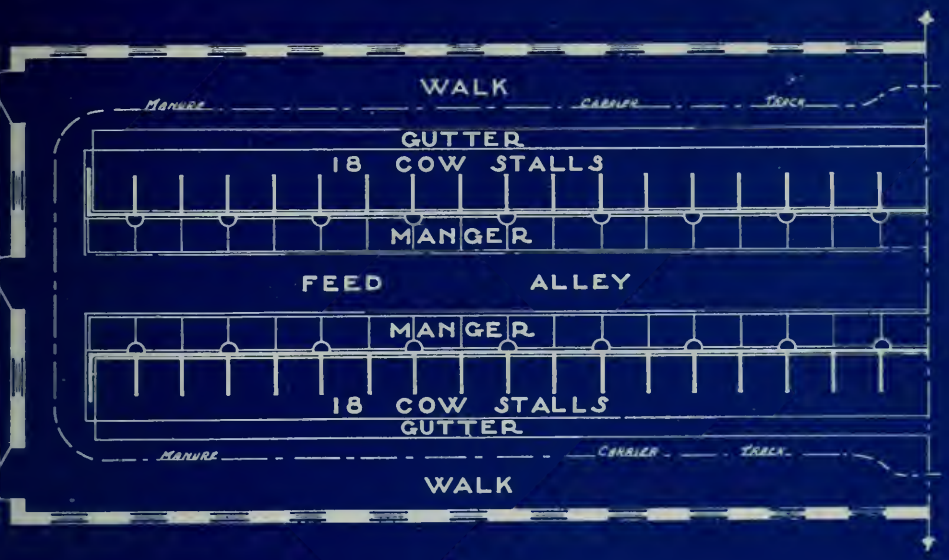


SUGGESTIVE PLAN

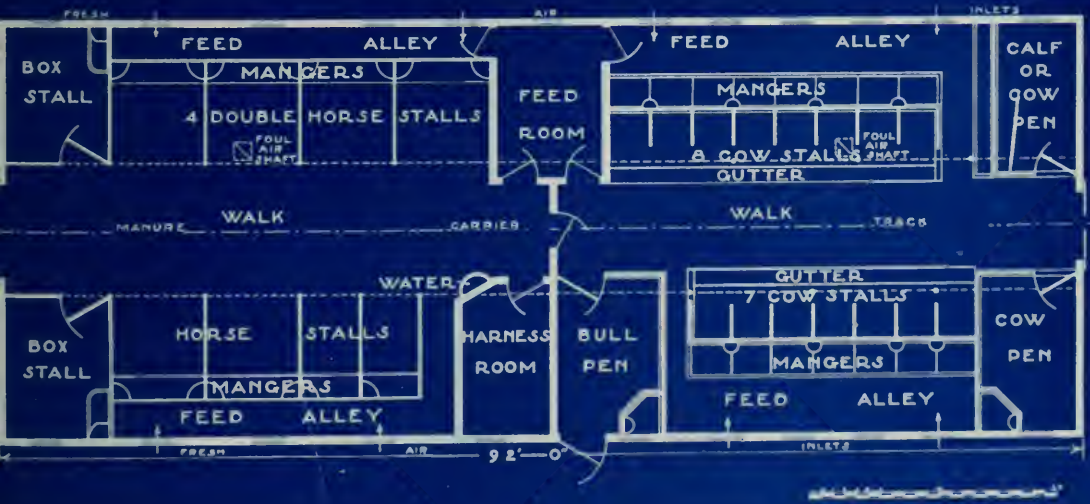


ALTERNATIVE PLAN

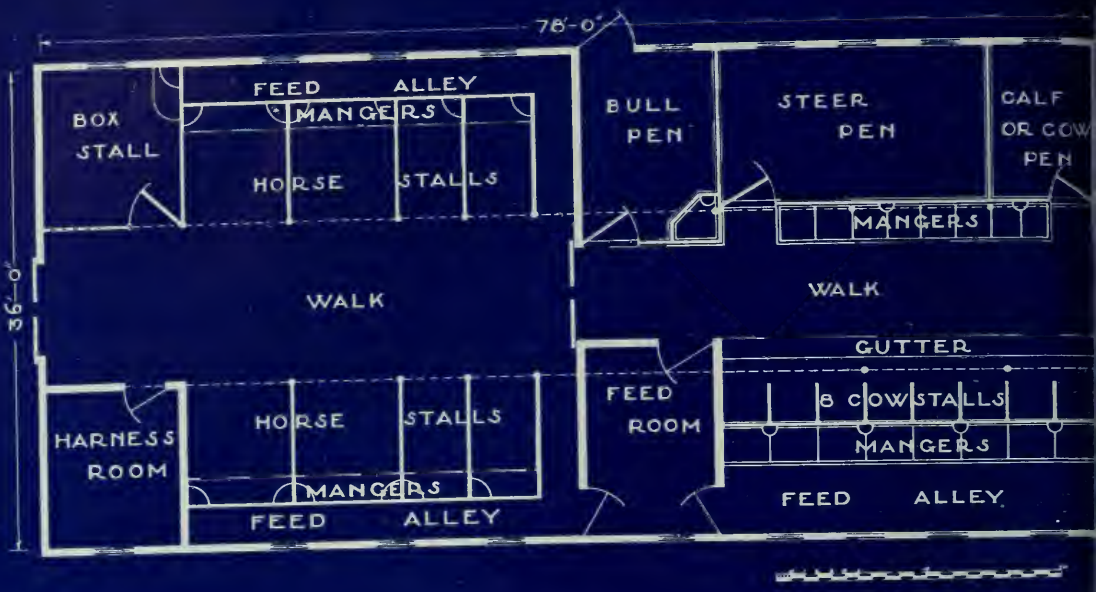
END DRIVE BARNS.



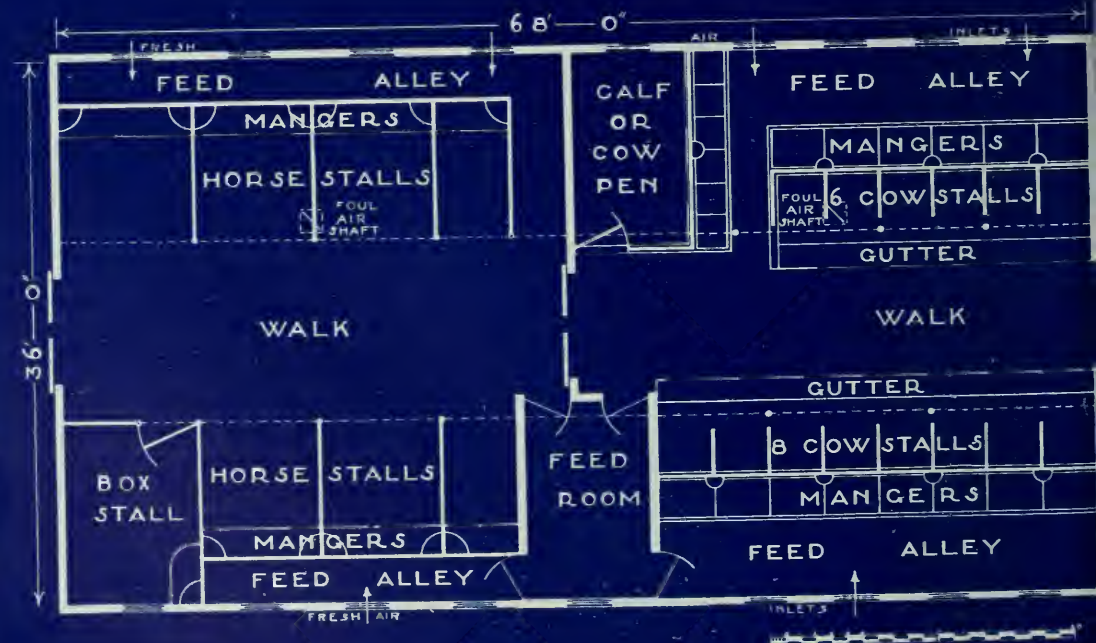
Extend your present accommodation by building one and a half storey dairy barn to present one

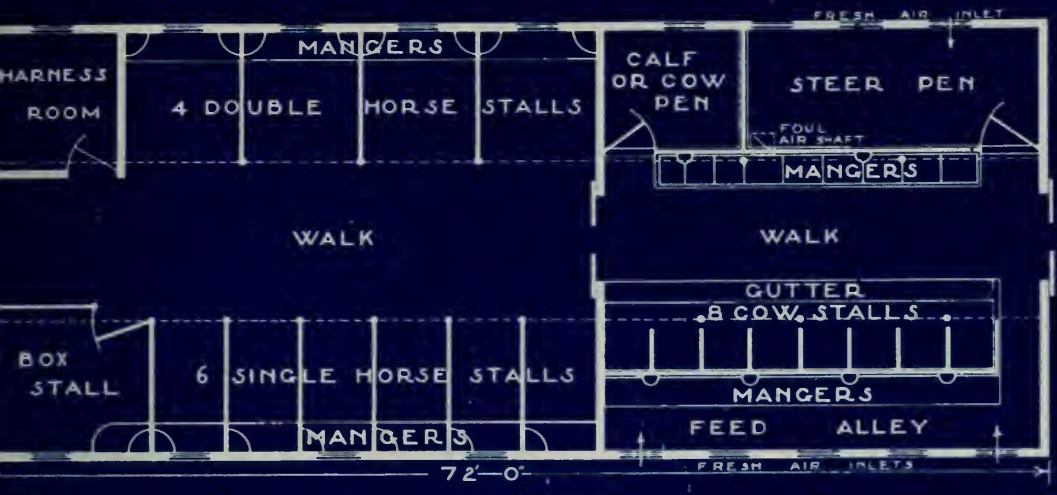


General Purpose Plan for Western Canada Barn

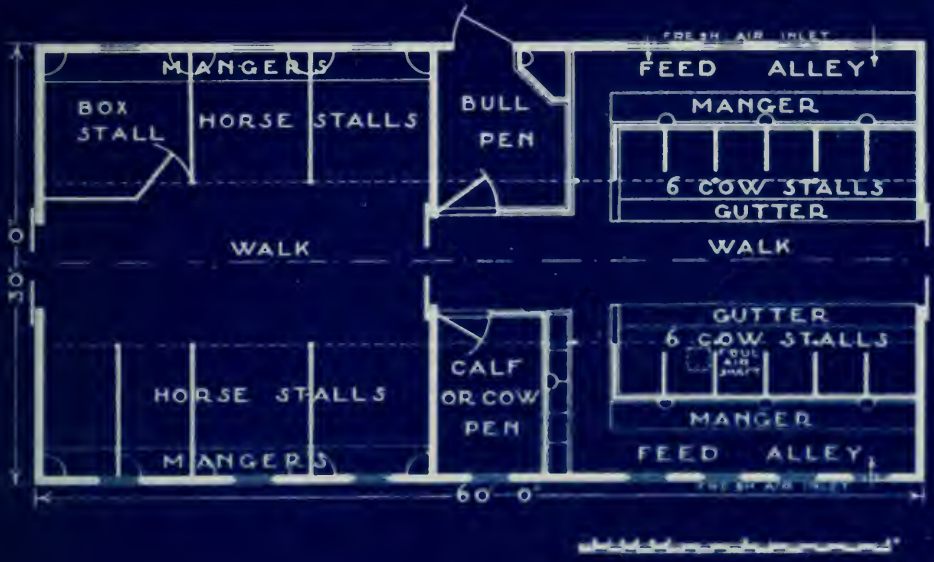


Two Plans for General Purpose Barn for Western Canada





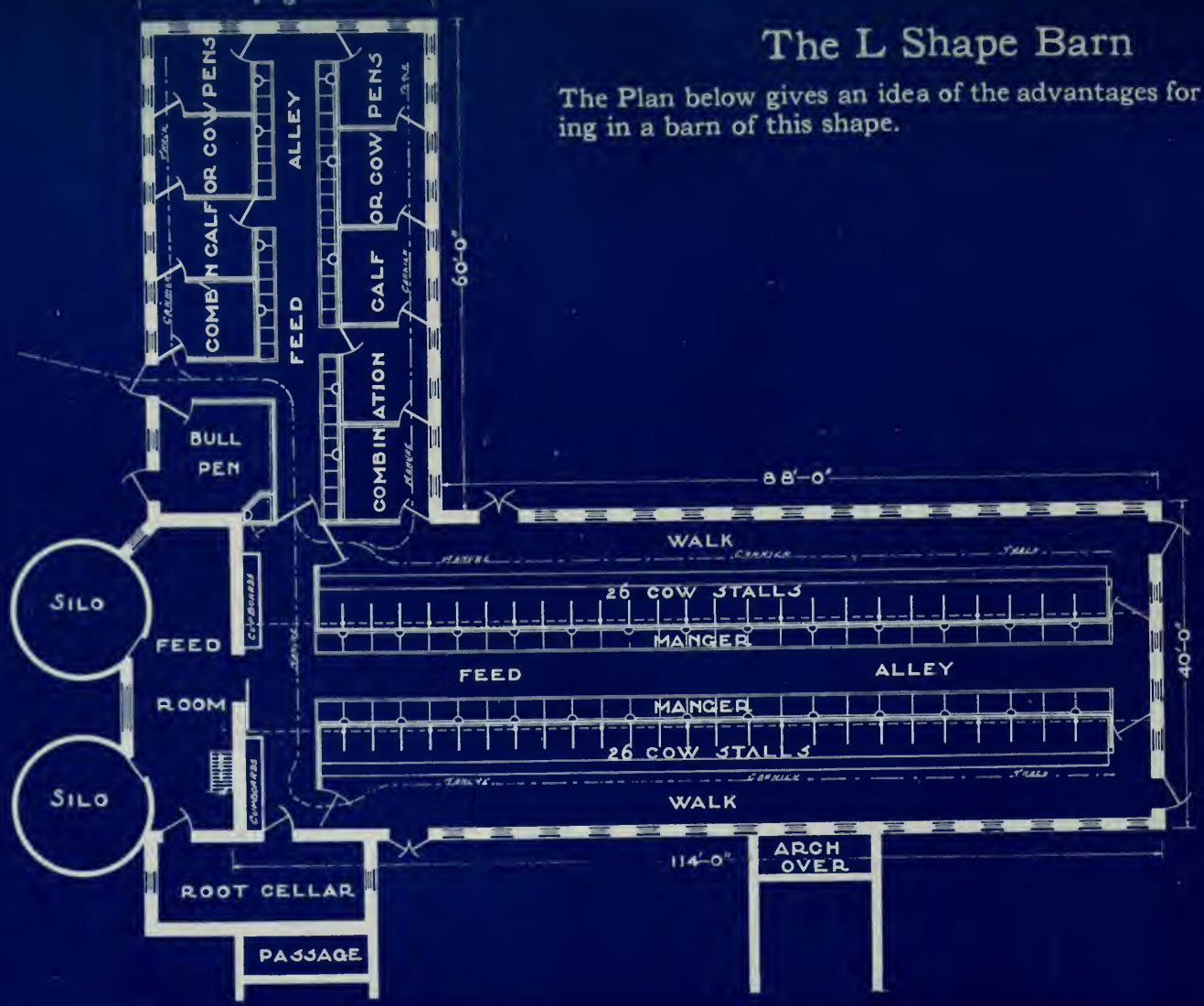
Two 30 Ft. Barns which are finding favor in our Western Provinces. Practically any type of layout can thus be narrowed. We do not, however, recommend narrow barns



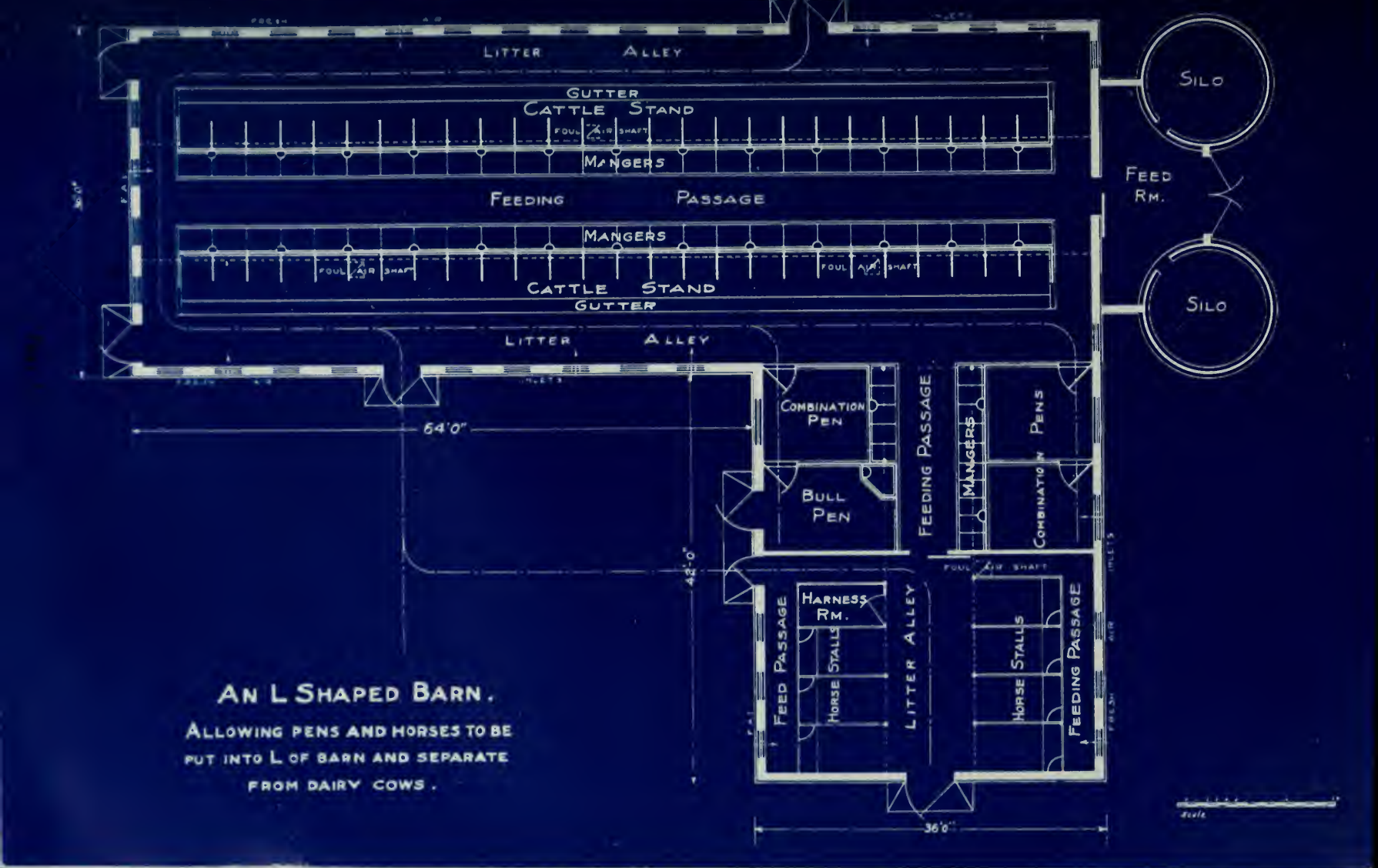
Barn of A. H. Fair
Kingston, Ont.

The L Shape Barn

The Plan below gives an idea of the advantages for easy feeding in a barn of this shape.

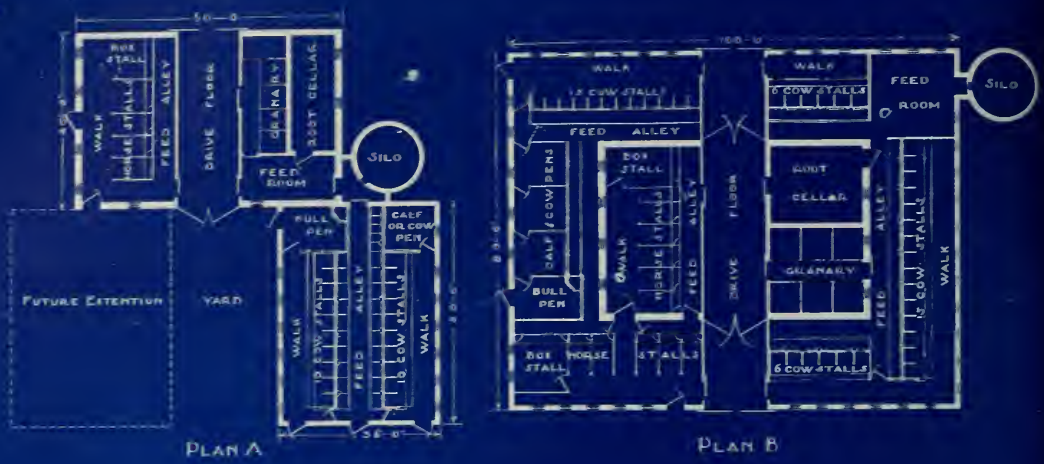


Barn of B. McCaw, Smith's Falls, Ont.



AN L SHAPED BARN.

ALLOWING PENS AND HORSES TO BE PUT INTO L OF BARN AND SEPARATE FROM DAIRY COWS.



Right and Wrong Methods of Enlarging the Barn

Plans A and B show the right and wrong methods of enlarging existing barns.

The idea of building a shed to the present barn and continuing this process, as necessity requires is a very poor one. Not many farmers would deliberately spoil a barn as shown at B, but the temptation is very great to add a shed to one side if only a few more stalls are required, and then when more are needed, nothing else can conveniently be none than continue the shed farther around until you find the layout as shown in plan B.

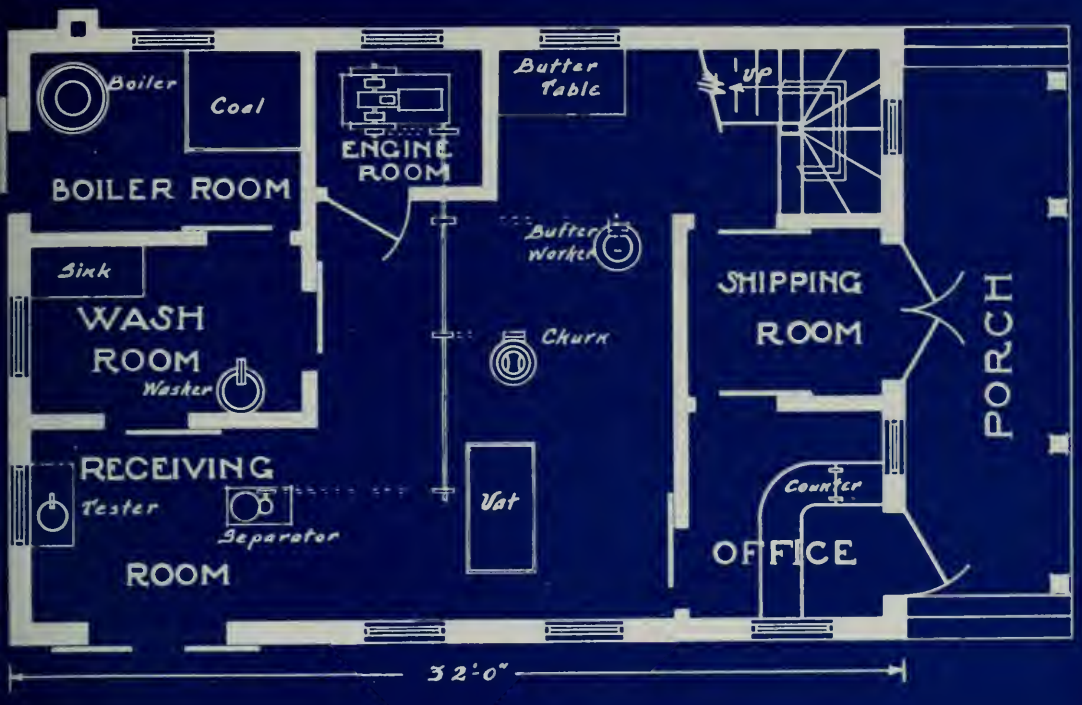
Study the feeding facilities as shown in the two plans and notice the numerous steps one would need to take to feed around the passages in plan B and compare with the short direct method of feeding two rows at once, as shown in plan A. Useless steps mean loss of time with a result of loss of profit.
The one storey barn as illustrated in plan A, lends itself to extension at any time, either by continuing this wing, or building another similar wing on the opposite side of the existing barn.

One cannot easily form a yard which will be easy of access from all four sides of B. Notice the nicely sheltered and compact yard that can be formed by building as in plan A.

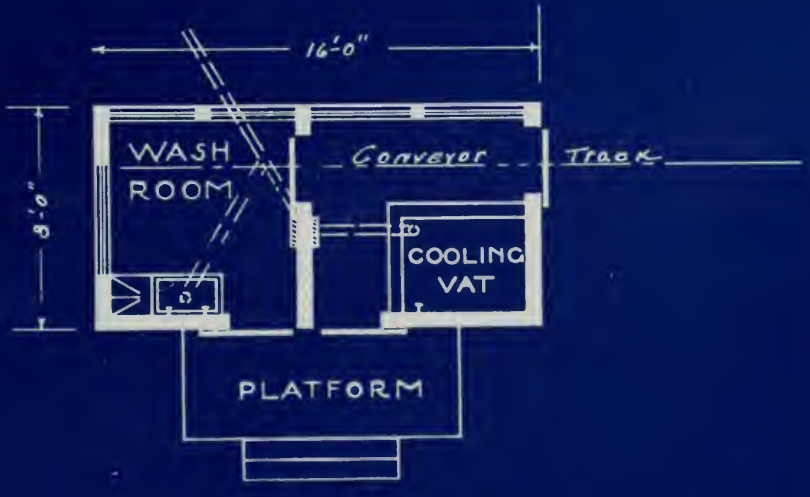
Plan A in proportion to the number of stock housed will be much more economical to build than plan B and this is the greatest consideration for those favoring plan A.

Again, supposing that there are windows in the present barn. How is one to obtain direct light in this barn if he builds as in plan B? The installation of borrowed light would help in a very small degree, and it is seldom possible to have high up windows.

The system of ventilation would suffer most. There would be parts in plan B in which the air could not be changed when necessary and the foul air shafts would have to extend past the highest point in the roof of the existing barn. A great decrease of the velocity of the air current would result if these were carried up inside the main building. This marked decrease would be caused by a sharp turn in the foul air shaft at the point where it leaves the shed and enters the main building. To carry the foul air shafts straight up through the shed roof, would be too expensive a proposition.



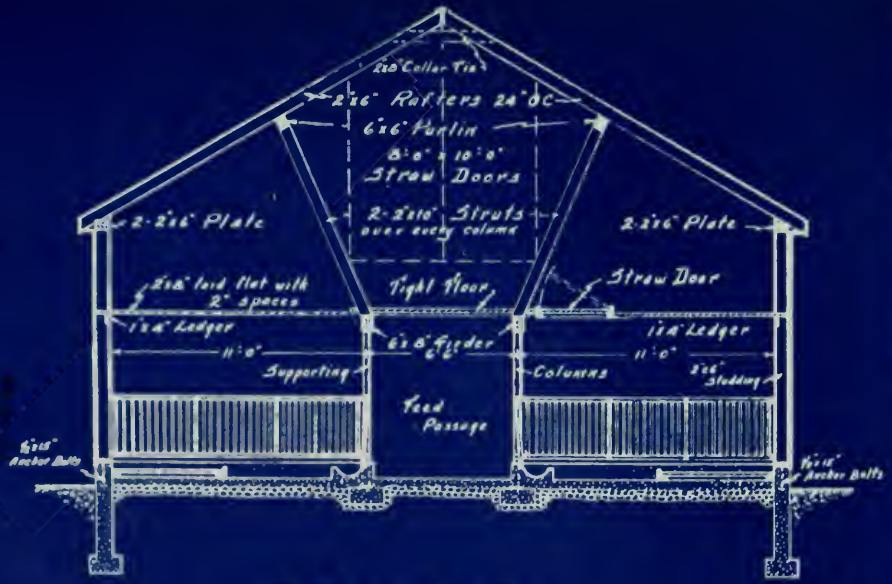
Plan for Dairy



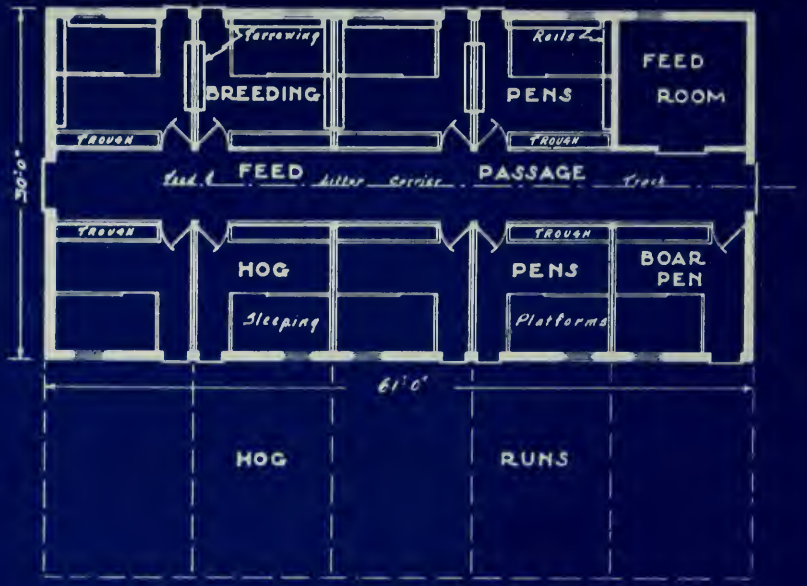
Plan for Milk Cooling Room

These Buildings may be used in connection with any barn. The Milk may be conveyed to them from the barn by an overhead track. See page 306.

Hog Barn, Don Alda Farms
Duncan, Ont.



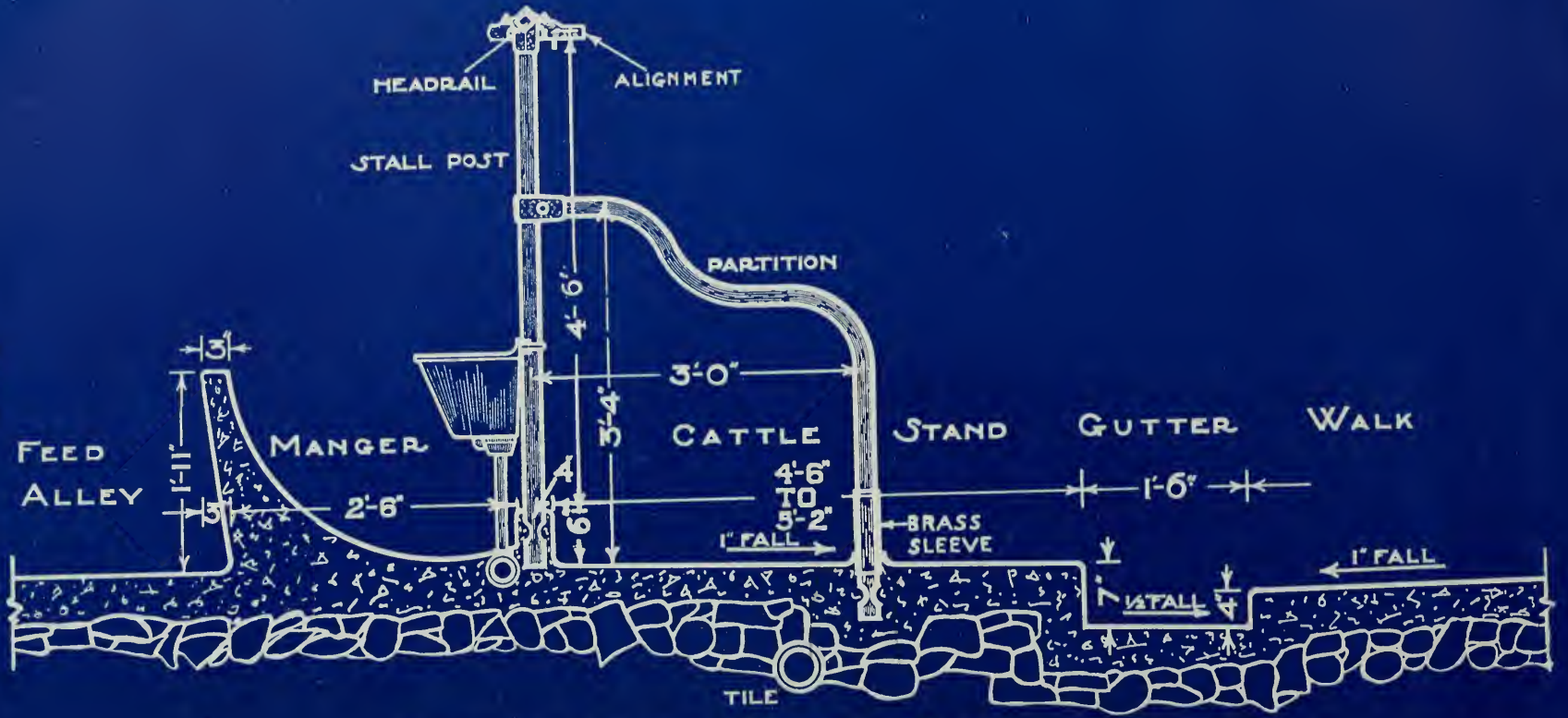
CROSS SECTION



PLAN

Plan for Hog Barn

Recommended by Ontario Agricultural College. Accommodation for 40 hogs is shown here. Barn may be extended as shown by photo on page 44.



SECTION THRU CATTLE STAND

Foundations

Good drainage is one of the first requisites of floor construction. If the barn is in a low place, make a filling so that the stable floor will be six or eight inches above the surrounding ground. If the barn is standing on heavy clay soil, make a layer of loose stone between the clay and the cement. In very heavy soils, place drains under the floor, so that they will be kept dry. See the opposite page. Use 4-in. tile. It pays to take a considerable amount of trouble to make sure that the place where the cows lie down is thoroughly dry, as this will mean much to the health and comfort of the cows.

For wall foundations, nothing equals concrete. Wall foundations should be built in the form of an inverted T, the footing being the cross of the T, and the bottom of the footing being below the frost line. Footings should be made twice the width of the wall and one foot deep. Note the cross sections throughout this book, for instance, page 66.

A special, heavy foundation must be laid for supporting columns, (as in page 66). It should be 2-feet square and one foot deep and should be capped by a tapering section of concrete 15 to 18 inches square and one foot deep. The tapering section spreads the weight of the column and the load the column supports over the heavier section below.

Walls

The concrete foundation is carried up above the stable floor a distance of at least one foot. Above that, the wall may be made of concrete, wood, or other building materials. In this book, we show first the concrete wall extended right up to the ceiling of the stable, as on pages 30 and 31. Twelve inches is the width recommended for concrete walls, but in one-storey or storey-and-a-half barns, a ten-inch wall is sufficient. Concrete walls are poured into forms made of matched sheathing, with the dressed side in. The sheathing is supported by 2" x 4" studs set 18" apart, centre to centre. Concrete makes the most durable and sanitary wall for the stable, but other combinations,—wood and building paper for instance,—make a dryer wall. Concrete will be plenty warm enough unless the stable is too spacious for the number of animals accommodated.

Although concrete foundations are almost universal, local conditions of climate and material available make a great difference to the construction of the stable wall above the point one foot from the surface of the ground where the foundation stops. Sometimes the concrete wall extends as high as the window sills, and the barn is then framed from the sills up, as on page 33. In other cases, the concrete wall may extend only one foot above the floor level, with the framed wall above that, as shown on pages 35, 37 and 39.

To secure the frame work to the foundation, bolts, 5/8" by 15" are embedded in the concrete wall, at intervals of 7-ft. or less. Four-inch sills are bolted to the wall with these. Above the foundation, studs 12ft., 14ft., or 16ft., in length are used, according to the storage space required in the mow. When a driveway runs up to the second floor and large sliding doors are used, a 14-ft. or 16-ft. stud is used on

Walls—(Continued)

top of the basement wall, to allow for the height of these doors. A smaller stud can be used in this case by adding a gable over the door.

A frame wall is sheathed on the outside in one of two ways. Either 7/8" tongued and grooved lumber is used, or shiplap, (dressed on one side so that it may be painted,) the shiplap being laid over 1-inch lumber with a thickness of building paper between. Studding is placed every 24 inches, and inside the studding, one thickness of building paper is used and 7/8" tongued and grooved stock, dressed smoothly and whitewashed.

If shiplap is used for siding, it should be laid horizontally. Tongued and grooved stock is better nailed on vertically, as by this plan the danger of water getting into the grooves and rotting the lumber is lessened.

Galvanized iron is also extensively used for siding. It is not only very durable, but also fireproof.

Floors

We emphatically recommend concrete for stable floors, and give on pages 74 to 81 detailed instructions for laying concrete floors. Stable floors must be waterproof, sanitary, easy to clean, comfortable for the cow, durable and inexpensive. No other material answers these requirements as well as concrete.

The old style wood floors we condemn as emphatically as we recommend concrete. They soak up the liquid manure, harbour disease germs and vermin, rot and become foul and offensive in a very few years. There is hardly anything that will spread tuberculosis and other diseases as fast as unsanitary wood floors. Wood floors need constant repair or their appearance soon becomes most unsightly, and it costs more to keep them in repair than it does to lay a satisfactory concrete floor in the first place. Wood floors have been condemned by government and city sanitary authorities for many years.

The objection is sometimes made that concrete floors are liable to be damp and cold. They are not when properly constructed. There is no difficulty when the cattle stand and box stalls are properly drained underneath, as shown on page 62. You will note that all the fine barns in this book have concrete floors,

Floors should have a uniform thickness of four inches, of which one inch should be a finished coat of cement mortar. Cattle stand and alleys should be given a rough finish with a broom or wooden float. The cattle stand should have a one inch fall to the gutter. The length of the cattle stand varies according to the breed of stock and size of animals to be accommodated. See the cross sections on page 66, and the table of suggested measurements on page 69.

Further information on concrete work is given elsewhere in this book. See "Concrete Proportions and Costs" on page 75, and Drainage Plan on page 71. As a detailed guide to the proper method of laying the stable floor, pages 75 to 81 will be found invaluable.

Creosote Blocks

Creosote Blocks make a satisfactory flooring if well laid. They should be laid on a cement foundation with a heavy coating of tar, pitch or neat cement (one of sand to one of cement).

Cork brick can also be used and is very satisfactory. It is made by mixing granulated cork with a special grade of tough asphalt, heating and making into brick form under pressure. The cracks between the bricks should be filled with cement. This makes a somewhat expensive floor, but it is satisfactory flooring if well laid.

Cattle Walks and Feed Alleys

Cattle walks vary in width according to the barn. Widths recommended for walks and alleys in barns of different dimensions are given in detail on page 66. The measurements are different, it will be noted, in barns where the cows face in than in barns where the cows face out.

Slope of Feed Alleys—When cows face in, the feed alley is in the centre of the barn. It is crowned 1-inch and slopes to the manger on either side. When cows face out, and the feed alleys are along the walls on both sides, the slope of the feed alley for drainage is from the walls to the mangers, a fall of 1-inch being allowed.

Slope of Cattle Walks—When cows face in, the cattle walks are next to the wall and slope an inch each, from the wall to the gutter. When the cows face out, the cattle walk is in the centre of the barn, and is crowned an inch in the centre, sloping both ways to the gutters.

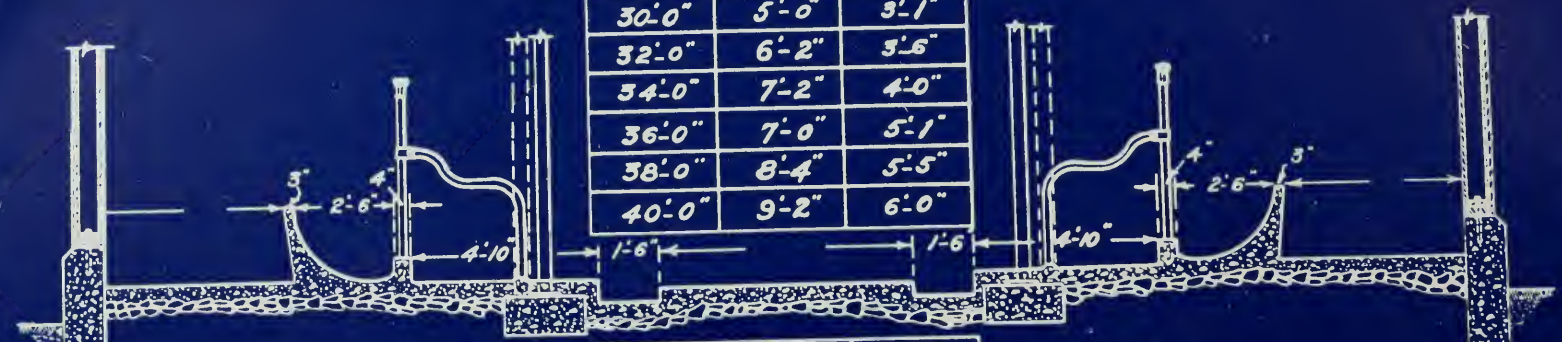
Cattle walks and feed alleys should always be given a rough finish, to prevent either the cows, or those in attendance upon them, from slipping.

The proper amount of lengthwise slope of gutters, mangers, etc., is given in connection with the other information on drainage, on page 71.

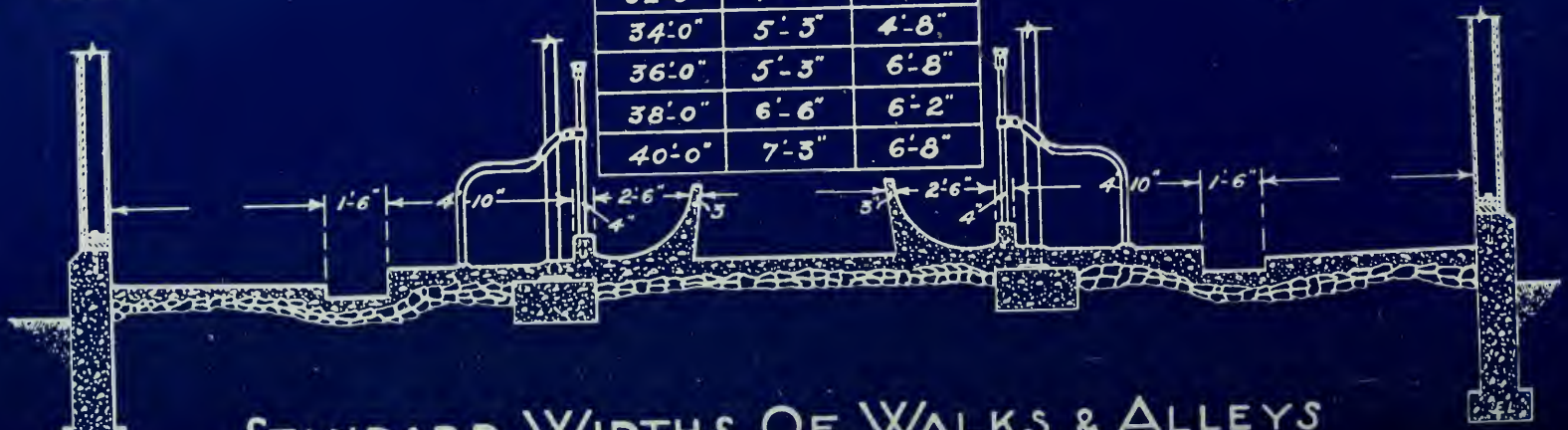
Mangers

The correct construction of the manger is most important. A good manger should be built in such a manner as to keep all the feed within the cow's reach, without any pushing and reaching after it. A good manger should be made so that the cow cannot nose the feed out into the feed alley and waste it. It should have no corners in which feed can collect and go sour and it should be easy to clean.

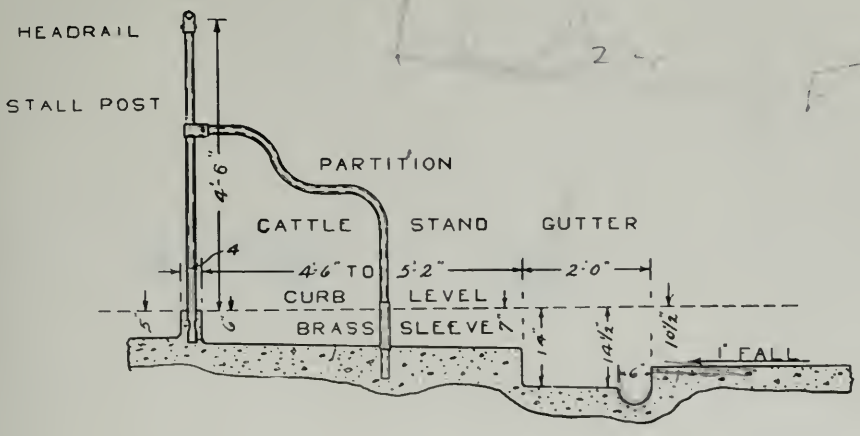
INSIDE WIDTH	CATTLE WALK	FEED ALLEY
30'-0"	5'-0"	3'-1"
32'-0"	6'-2"	3'-6"
34'-0"	7'-2"	4'-0"
36'-0"	7'-0"	5'-1"
38'-0"	8'-4"	5'-5"
40'-0"	9'-2"	6'-0"



INSIDE WIDTH	CATTLE WALK	FEED ALLEY
30'-0"	3'-3"	4'-8"
32'-0"	4'-6"	4'-2"
34'-0"	5'-3"	4'-8"
36'-0"	5'-3"	6'-8"
38'-0"	6'-6"	6'-2"
40'-0"	7'-3"	6'-8"



STANDARD WIDTHS OF WALKS & ALLEYS



All these requirements are met by the High Cement Manger, shown in practically every barn in this book. We consider that this, when combined with the steel manger divisions, makes the ideal manger.

Pages 74, 75 and 80 show the exact measurements for this manger; method of building the cribbing, etc. The use and advantages of the Steel Manger Divisions are thoroughly illustrated and described on pages 135 to 139. See especially pages 136 and 138.

As will be noted in the illustration on page 136, the Steel Manger Divisions are furnished with a rail that prevents the feed from being tossed out into the feed alley. If the divisions are not used, the Feed Rail, Fig. 742, page 139, should be used.

The High Cement Manger is so designed that it keeps all the feed within easy reach of the cow. At the same time, its height in front and the use of the Feed Rail, prevent feed from being nosed out into the feed alley. This style of manger is greatly to be preferred to the type which is about eight inches deep, with the top on a level with the feed alley. This type of manger is responsible for many sore knees and briskets in cattle. The cow noses the feed into the feed alley, where she can see it but cannot reach it. A cow will push and strain to get at that feed as long as she can see it. With the High Cement Manger, if any feed should happen to get tossed into the feed alley, it will be out of sight.

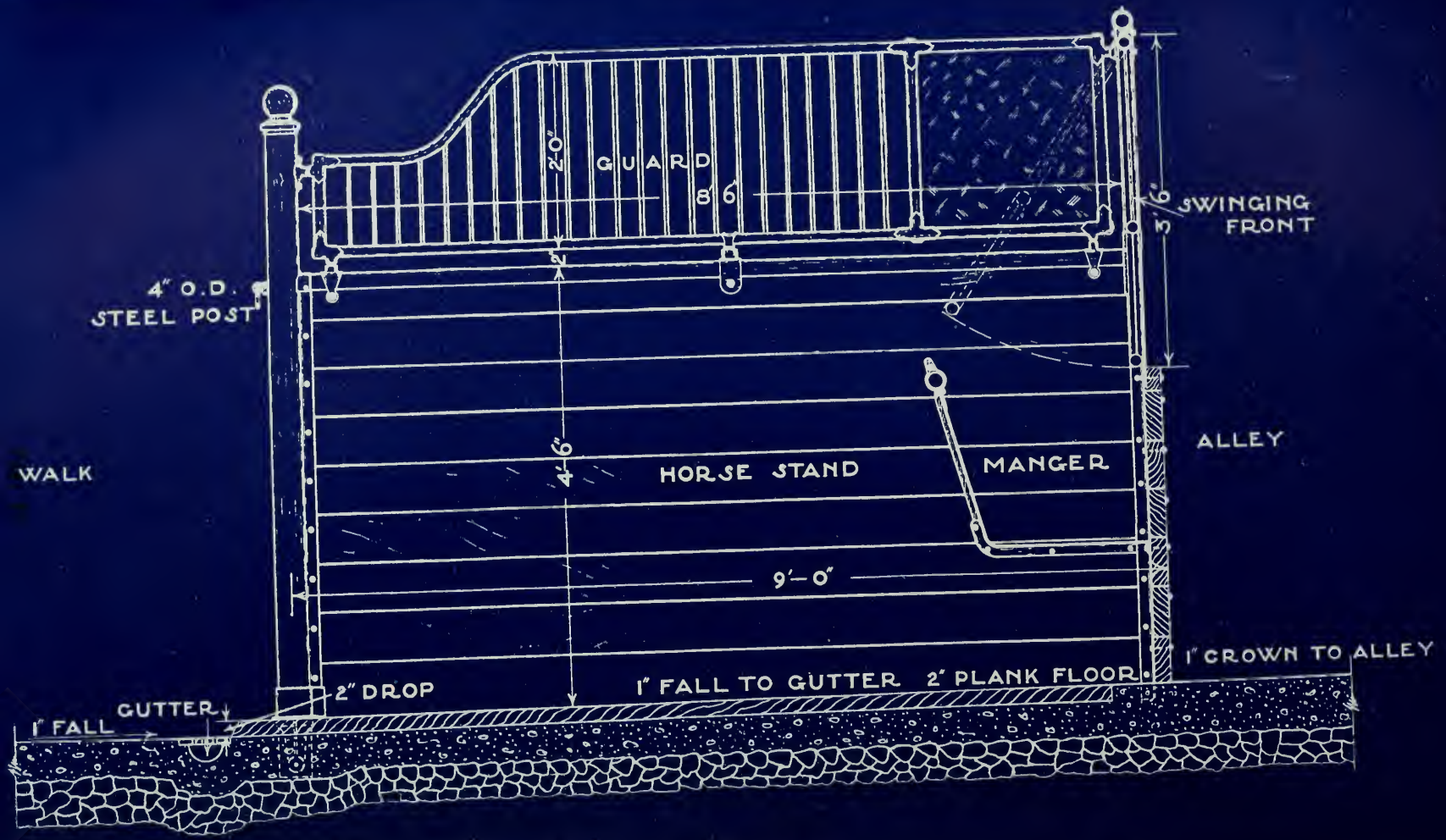
Note that the front of the manger is not perpendicular, but slopes in at the bottom, as shown by the blue print on page 62. By this construction, less concrete is used, it is just as easy to build, and it enables the owner to get closer to the stanchions when he wants to close or open them from the feed alley.

Note, also, that the bottom of the manger is 1-inch above the cattle stand.

Gutters

A gutter 18-inches wide is recommended, 7-in. deep, on the cattle stand side, 4-in. deep on the cattle walk side and sloping ½-in. to the cattle walk side.

A type of gutter very much used in England is shown above. The different dimensions are all given in the drawing. This gutter has the advantage of carrying away the liquid manure more readily, by means of the round depression on the cattle walk side of the gutter.



Cross Section Horse Stall

Curbs

Concrete curbs should be 6-ins. high and 4-ins. wide, built in one long, even piece. It is not necessary to cut out the curb for the bottom of the Beatty Stanchion. The reasons why the Beatty Stanchion can be used with a uniform, high level curb are given on page 113. This is a very great advantage, because the high level curb is easy to make.

Table of Cattle Stand Measurements

Breed	Width of Stall	Length of Cattle Stand		
		Small	Medium	Large
Holstein	3′ 6″ to 4′ 6″	4′ 8″	5′ 0″	5′ 4″
Shorthorn	3′ 6″ to 4′ 6″	4′ 8″	5′ 0″	5′ 4″
Ayrshire	3′ 6″ to 3′ 10″	4′ 6″	4′ 10″	5′ 2″
Guernsey	3′ 6″ to 3′ 10″	4′ 6″	4′ 10″	5′ 2″
Jersey	3′ 4″ to 3′ 6″	4′ 4″	4′ 6″	4′ 8″
Young Stock	3′ 0″ to 3′ 2″	3′ 8″	4′ 0″	4′ 2″

Throughout the Barn Book, we have used the average measurement for cattle stand, which is 3′ 6″ in width and 4′ 8″ in length.

Box Stall for Bull:—10′ x 14′. Not less than 10′ x 10′.

Box Stall for Cow:— 10′ x 12′. Not smaller than 8′ x 9′.

Hog Pens:—10′ or 12′ wide and 12′ deep, each to accommodate 8 or 9 hogs.

Horse Stalls:—5′ x 9′.

Horse Box Stalls:—12′ x 12′. Not smaller than 8′ x 12′.

Location of Horse Stalls

Horses are sometimes stabled with the cattle, but this arrangement should be avoided if possible. When horses are kept in the same barn as cows, there should always be a tight partition between them to prevent odors from the Horse Stable getting into the Dairy Barn. Furthermore, cows do better when they are not disturbed by the hitching and unhitching of horses. When horses are stabled with the cattle, it is preferable to place them in the North end, saving the sunny South exposure for the cattle. Usually this position is more convenient for attending to both horses and cattle.

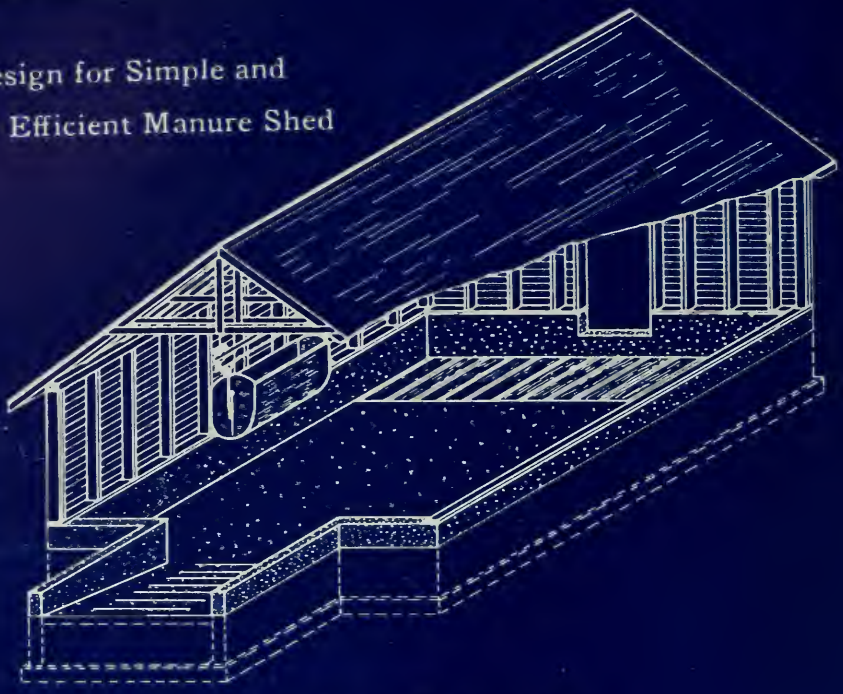
For full particulars of Horse Stable Equipment, see pages 222 to 263.

Location of Calf Pens

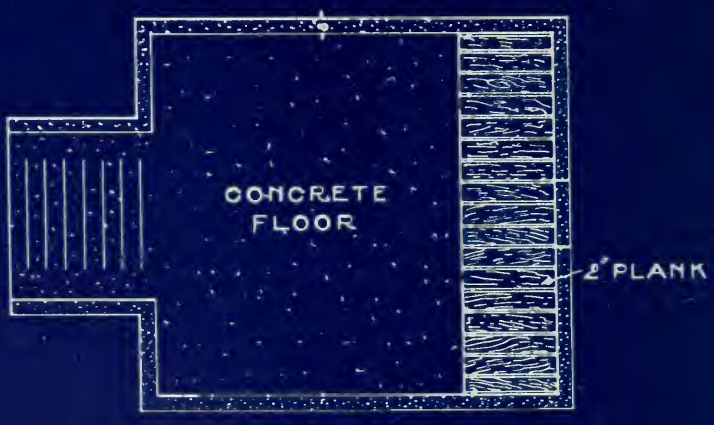
In large dairies, where it is possible, calf pens and bull pens should be put in a separate building from that in which the dairy cows are kept. Otherwise, place the pens at the ends of the rows of stalls. If possible, have a door handy for letting out the bull, so that it will not be necessary to take him along the cattle walk to get him in or out of the stable.

For particulars of Pens, see pages 146 to 187.

Design for Simple and
Efficient Manure Shed



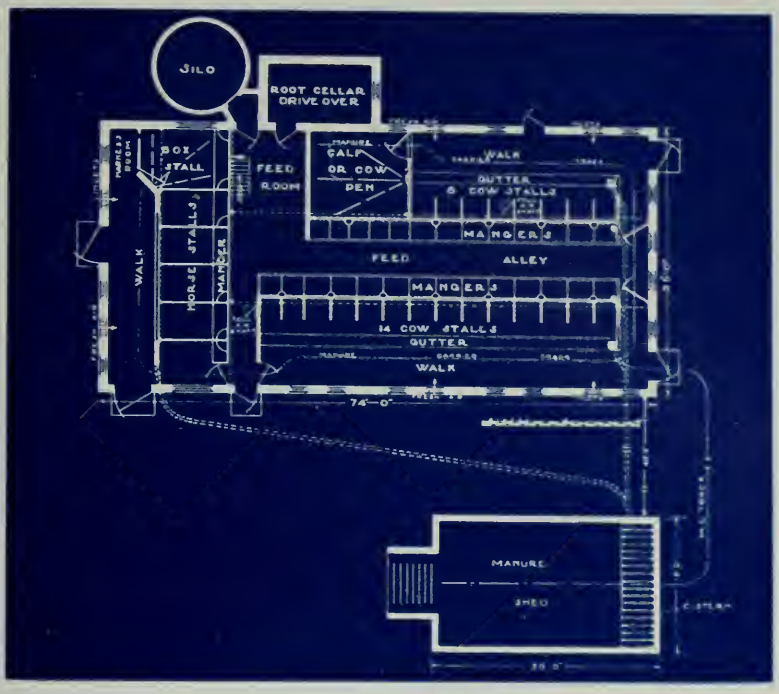
SECTIONAL ELEVATION



PLAN

MANURE PIT

LONGITUDINAL SECTION



Drainage Plan for Cow Stable

Mangers, cattle walks and feed alleys should have a lengthwise slope of one or two inches in 50 feet. Gutters should have a lengthwise slope of two or three inches in 50 feet. A 50-ft. stretch is all that can be handled conveniently by one drain. If the stable is much longer than 50 feet, it can be made to slope to the middle from both ends.

For manger outlets use Manger Trap, Fig. 561, page 256. For gutter outlets use the Beatty Gutter Trap, Fig. 444, page 256. Use the Bell Trap, Fig. 337, page 256, in the feed alley. Give pens a fall of 1-inch to the trap.

The drain should run to a manure shed, in one end of which is a cistern to receive and store the liquid manure. A suitable plan for such a manure shed is shown on the opposite page. This is similar in construction to that recommended by the Department of Agriculture of the Province of Quebec.

Of all fertilizers, farm manure is undoubtedly the most efficient, complete and economical. When it is borne in mind that 75% of the fertility of the manure is contained in the liquid, the importance of conserving and using this to the utmost becomes very evident. It is important to bear in mind that manure, although very effective as a fertilizer is also very easily wasted when proper care is not taken for its conservation, handling and use.

It is recommended that the liquid manure in the cistern of the manure pit shown on page 70 be pumped out from time to time and sprinkled over the solid mass to prevent it from heating. Heating destroys a large percentage of the value of the manure, so it is advisable to sprinkle the liquid over it from time to time.

Barn of Byron McCaw, Smith's Falls, Ont.

Barn of Brooksbank Laboratories Limited, Vancouver, B. C.

The Layout of the Stable

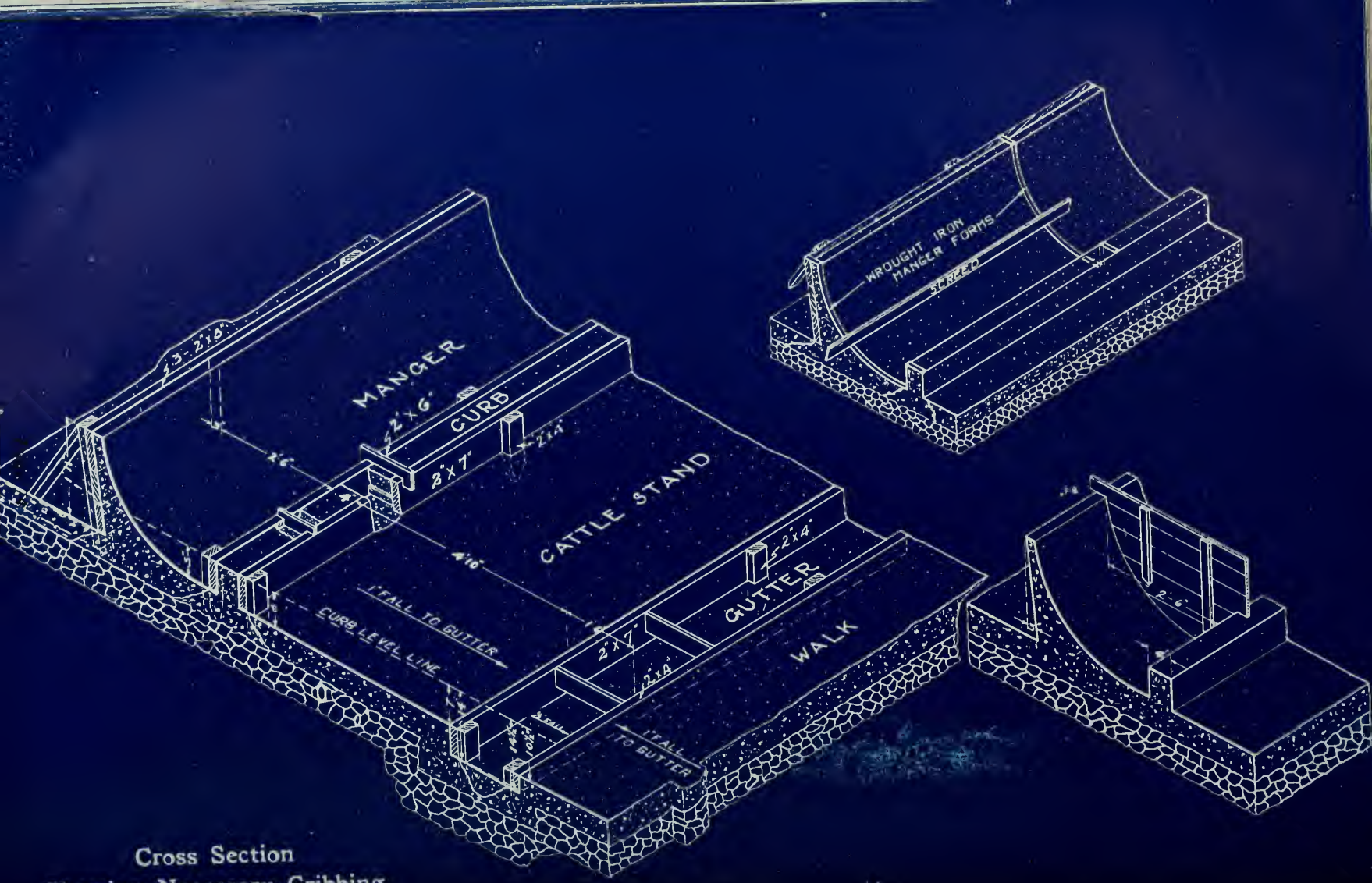
Usually the first question to be decided, once the general design and size of the barn have been settled, is the method of placing the cows,—whether they should face in or face out. There are arguments for both methods, as stated below:—

Face In:

1. You get the light on the business end of the cow. You get better light for that part of your stable work where light is needed most.
2. Permits the person milking to see whether the cows' udders are clean or not.
3. It is easier to feed along one central passage, as the feeding of both rows can be done at the one trip. It also helps in the arrangement of the feed room to have one feed passage. Whether cows face in or out, each gutter must be cleaned separately so no time is saved in cleaning by having the cows face out.
4. Modern stable construction always makes feed passages and mangers much higher than cattle walks and gutters. Therefore, when the cows face in, the central part of the stable is highest and the sides the lowest, since the gutters are near the sides. You have drainage towards the outside, which is easier to arrange than drainage towards the centre.
5. It is not well for cows to stand facing the strong sunlight.
6. The ventilating system works better when the cows face in, as the outlet flue can be directly above their heads to remove the stale air.
7. When the cows are heads in, the supporting posts come near the head rail, at the narrowest part of the animal, so that they do not take up the room she needs to lie down in.
8. With the facing in arrangement, supporting posts are not in such a position as to get in the road when the owner is milking.
9. There is less confusion when letting the animals in or out. There are two separate cattle walks, one on each side, instead of one in the centre, so that only half the animals can use each walk. Cows cannot get into the wrong row, as they can with a central cattle walk.
10. You size a cow up from behind. When cows face in, you have the light behind you and on the important end of the cow.
11. The sunlight falls on the gutter, where it has a most beneficial effect by killing disease germs.

Face Out:

1. Cleaning, milking and three-fourths of the work is done behind the cows. Therefore, centralize cattle walks, not feed alleys.
2. No danger of cows breathing into each other's faces.
3. Herd does not have to be divided when tying up the cows.
4. Cows are sized up from behind. The face-out arrangement shows up the whole herd at one time.
5. Advocates of this arrangement say that when the cows face in, the manure from the gutter spatters the walls.



Cross Section
Showing Necessary Cribbing

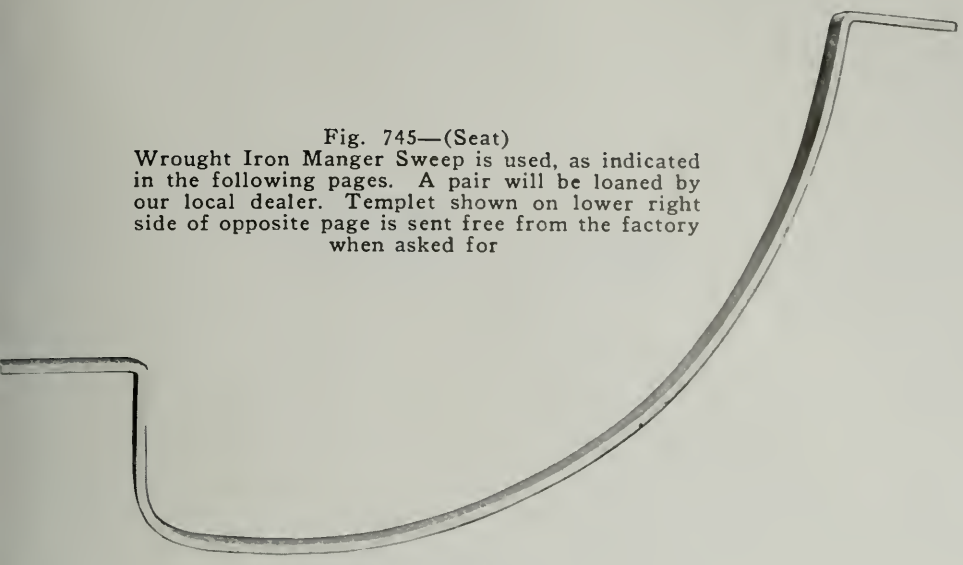


Fig. 745—(Seat)
Wrought Iron Manger Sweep is used, as indicated in the following pages. A pair will be loaned by our local dealer. Templet shown on lower right side of opposite page is sent free from the factory when asked for

Erecting Steel Stalls

Full instructions for erecting Beatty Steel Stalls appear in the following pages. For further information on cattle stands, floors, mangers, curbs, gutters, etc., see pages 64 to 69.

Concrete Proportions and Costs

For foundations and for walls use a 1;3;6 mixture; that is to say, one part of cement to three parts of sand and six parts of gravel. For floors, use a 1;2;4 mixture. Unless pit run gravel has the right proportions of sand and gravel, it should be screened.

The amount of concrete in a stable floor is found by multiplying the length in feet by the width in feet by half a foot. The half foot represents the thickness of the cement. Floors are only four inches thick, but two inches must be added to this to allow, roughly, for the extra material in mangers and curbs.

In a barn measuring 34 x 60 ft. inside the walls, there would, therefore, be 1020 cubic feet of concrete. Cement, at the time of writing, in Central Ontario, is worth about $3.58 per bbl. Sand and gravel are worth $2.25 per cubic yard, (including hauling, but if the farmer does his own hauling, as many do, the out-of-pocket cost is very small).

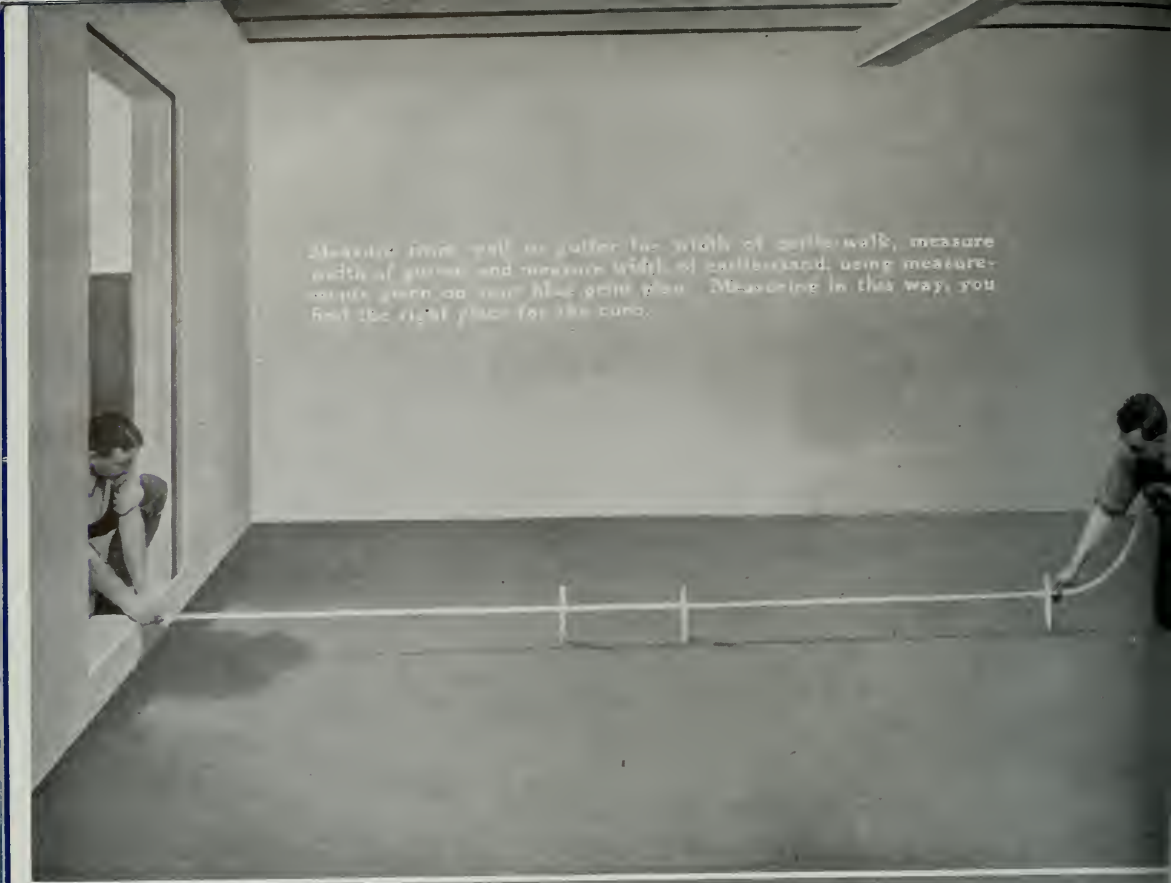
To find barrels of cement, multiply by .048. To find cu. yds. of sand, multiply by .0155. To find cu. yds. of gravel, multiply by .031.

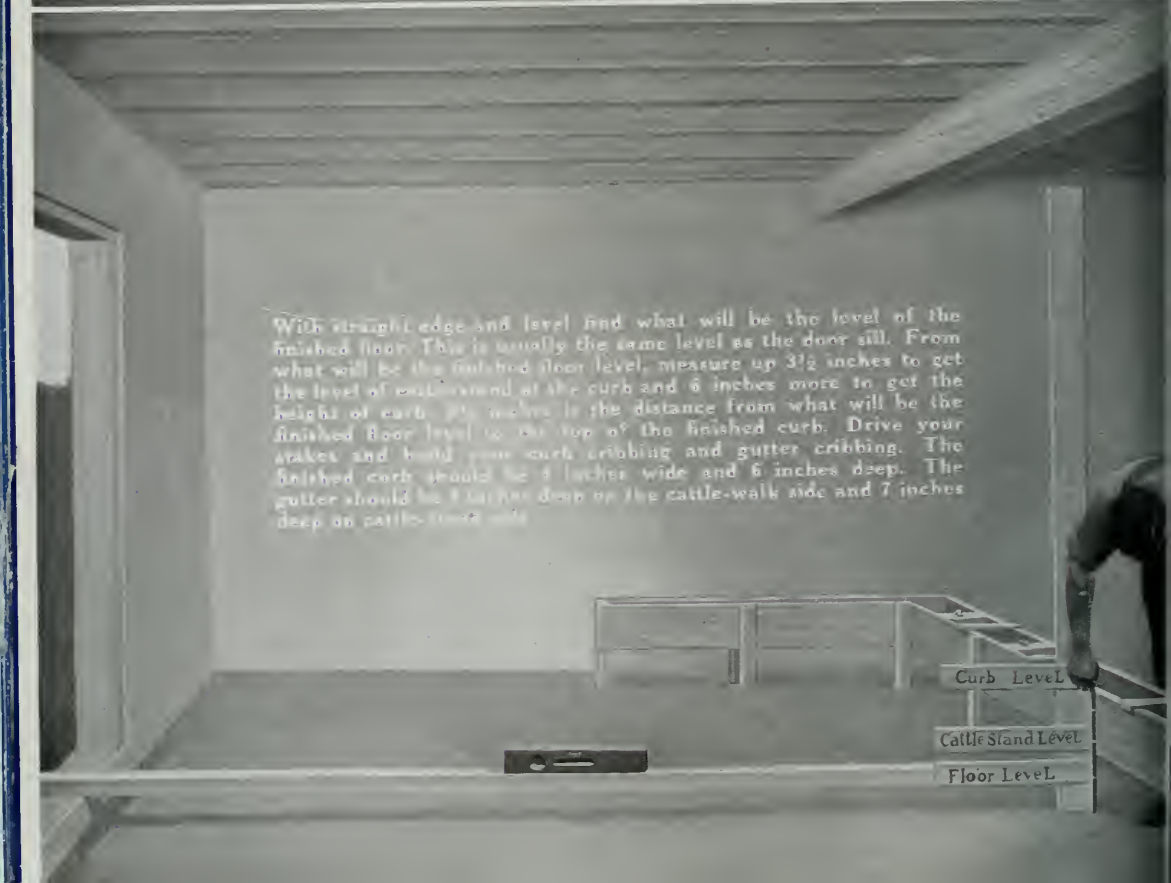
1020 x .048 equals practically 49 bbls. cement at $3.58	$175.42
1020 x .0155 equals 15.81 cu. yds. Sand at $2.25	35.57
1020 x .031 equals 31.62 cu. yds. Gravel at $2.25	71.14
	$282.13

As there would be 32 cows in a stable this size, the cost of material for the cement work in the floors would be $8.81 per cow. If the farmer had his own gravel pit, or even if he did his own hauling, almost $100.00 could be taken off this estimate and the cost would only be about $5.70 per cow.

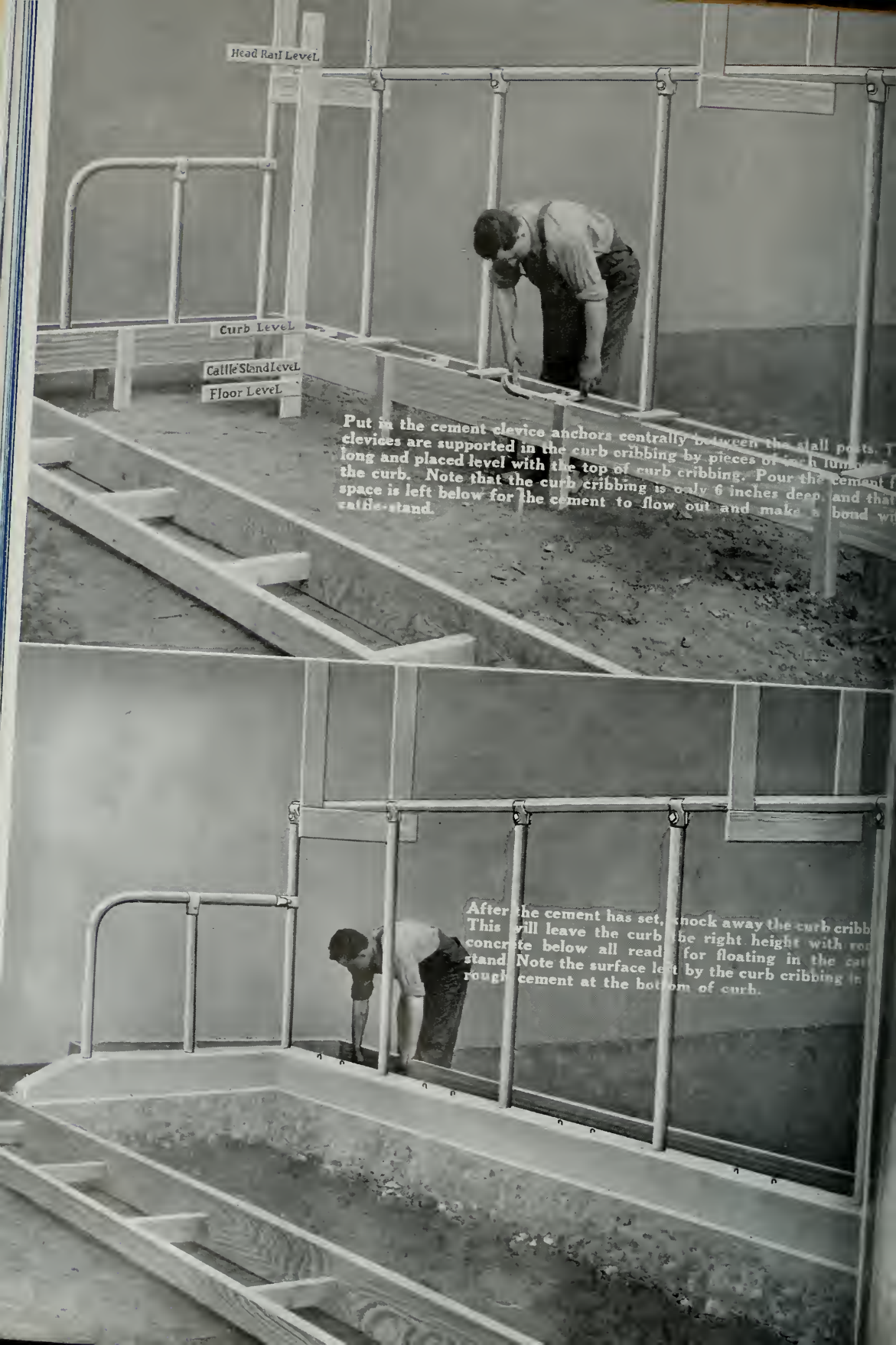
The cost of the walls may be found in the same way. Using a 1:3:6 mixture in the walls, multiply by .033 for barrels of cement, by .016 for cu. yds. of sand and by .032 for cu. yds. of gravel. An approximate rule for figuring amount of cement is as follows:—

1⅓ barrels of cement for a cubic yard of concrete floor and one barrel of cement for a cubic yard of concrete wall. There are 27 cubic feet to a cubic yard, and four bags to one barrel of cement.


Measure inside wall or gutter for width of cattle-walk, measure width of curb and measure width of cattle-stand, using measure-boards given on your blue print plan. Measuring in this way, you find the right place for the curb.

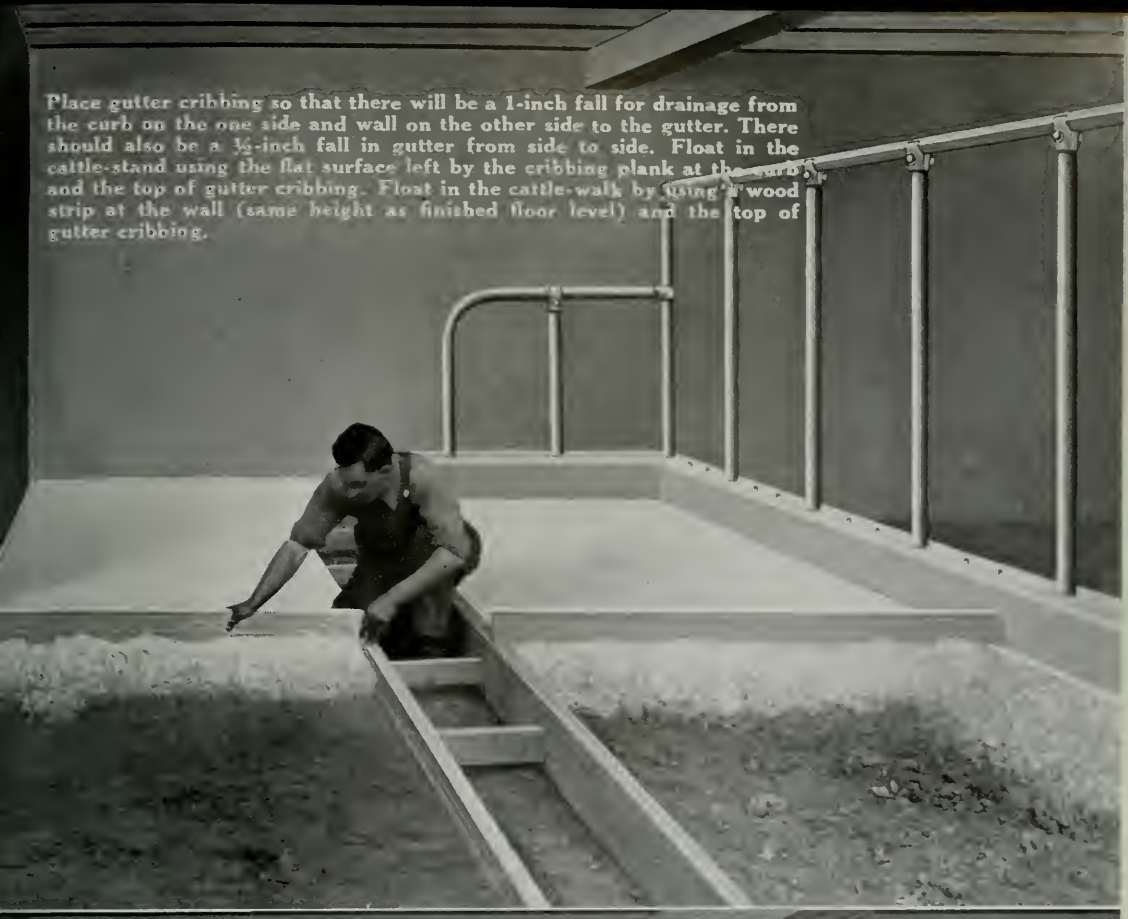

With straight edge and level find what will be the level of the finished floor. This is usually the same level as the door sill. From what will be the finished floor level, measure up 3½ inches to get the level of cattle-stand at the curb and 6 inches more to get the height of curb. 9½ inches is the distance from what will be the finished floor level to the top of the finished curb. Drive your stakes and build your curb cribbing and gutter cribbing. The finished curb should be 3 inches wide and 6 inches deep. The gutter should be 9 inches deep on the cattle-walk side and 7 inches deep on cattle-stand side.
Curb Level
Cattle Stand Level
Floor Level

Hang the stall posts from the headrail according to width of stalls given on your blue print, using center to center measurements. Plumb the posts and fix them in correct position with wood spacers. Attach your finished end. Distance from cattle stand to top of finished end is 3 ft. 4 in. Plumb finished end uprights and block them up with stones.



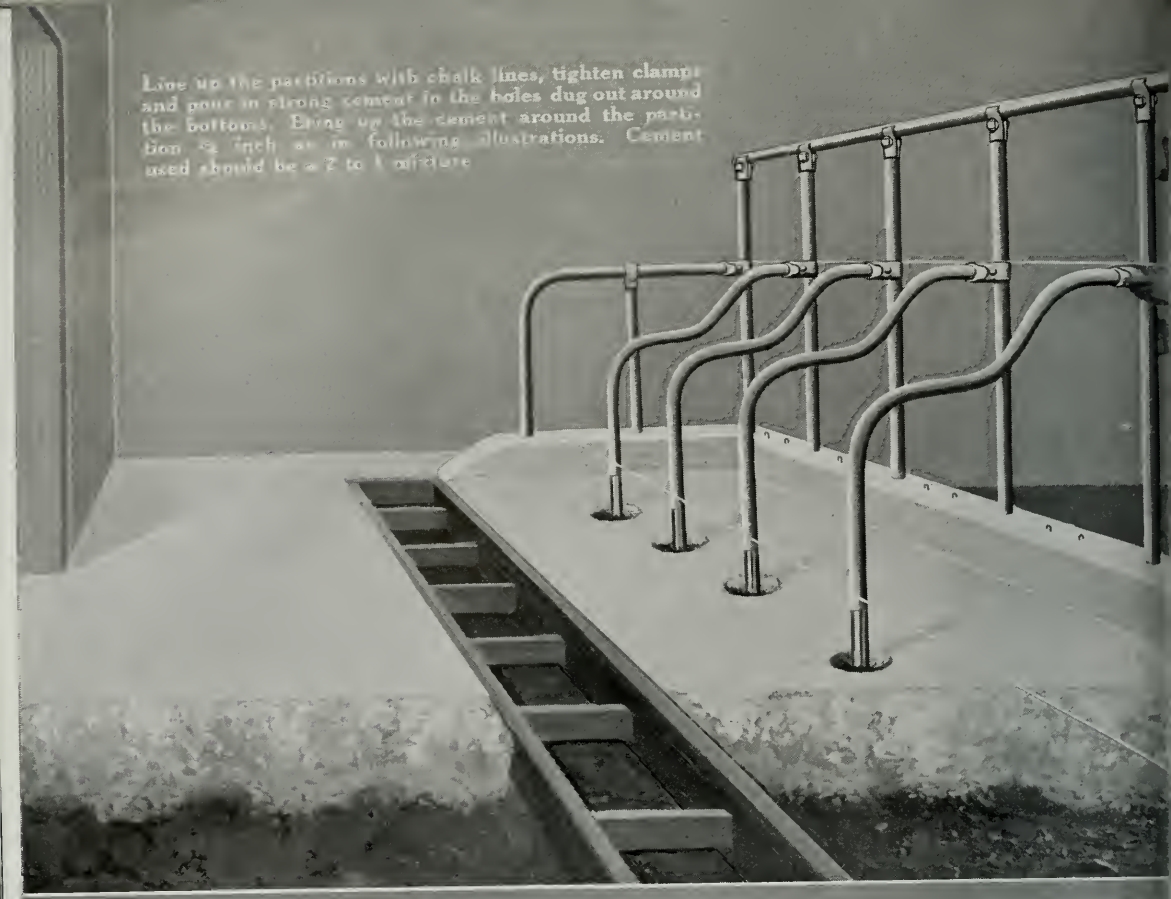
Put in the cement clevice anchors centrally between the stall posts. T
clevices are supported in the curb cribbing by pieces of [illegible]
long and placed level with the top of curb cribbing. Pour the cement f
the curb. Note that the curb cribbing is only 6 inches deep, and that
space is left below for the cement to flow out and make a bond wi
cattle-stand.

After the cement has set, knock away the curb cribb
This will leave the curb the right height with ro
concrete below all ready for floating in the cat
stand. Note the surface left by the curb cribbing i
rough cement at the bottom of curb.

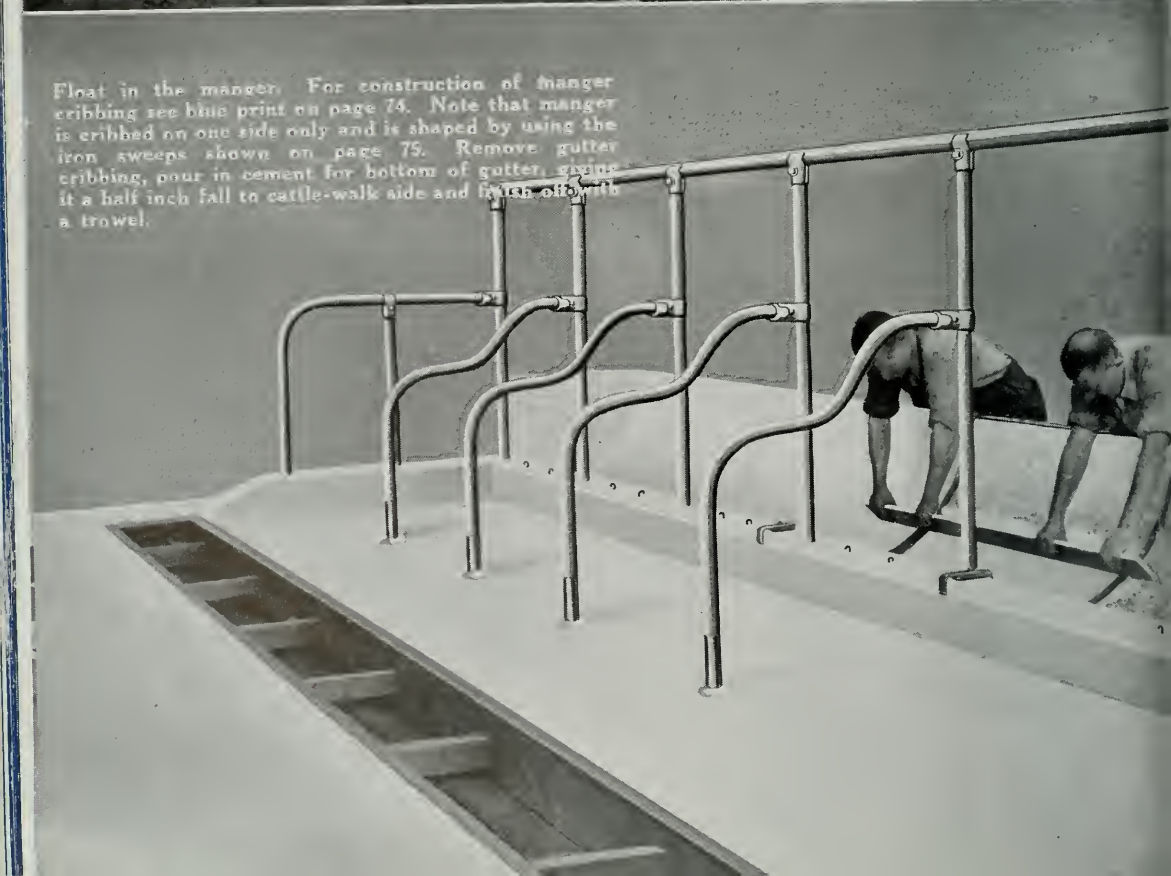


Place gutter cribbing so that there will be a 1-inch fall for drainage from the curb on the one side and wall on the other side to the gutter. There should also be a ½-inch fall in gutter from side to side. Float in the cattle-stand using the flat surface left by the cribbing plank at the curb and the top of gutter cribbing. Float in the cattle-walk by using a wood strip at the wall (same height as finished floor level) and the top of gutter cribbing.

Make holes in the cattle-stand for the partitions. These are dug out while the cement is green, so that a stronger cement can be used around the bottom of the partition to make it solid. The distance from cattle-stand to top of partition is 3 ft. 4 in.



Line up the partitions with chalk lines, tighten clamps and pour in strong cement in the holes dug out around the bottoms. Bring up the cement around the partition ¾ inch as in following illustrations. Cement used should be a 2 to 1 mixture



Float in the manger. For construction of manger cribbing see blue print on page 74. Note that manger is cribbed on one side only and is shaped by using the iron sweeps shown on page 75. Remove gutter cribbing, pour in cement for bottom of gutter, giving it a half inch fall to cattle-walk side and finish off with a trowel.

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n the feed passage,
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When the feed
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Style R (page 130)
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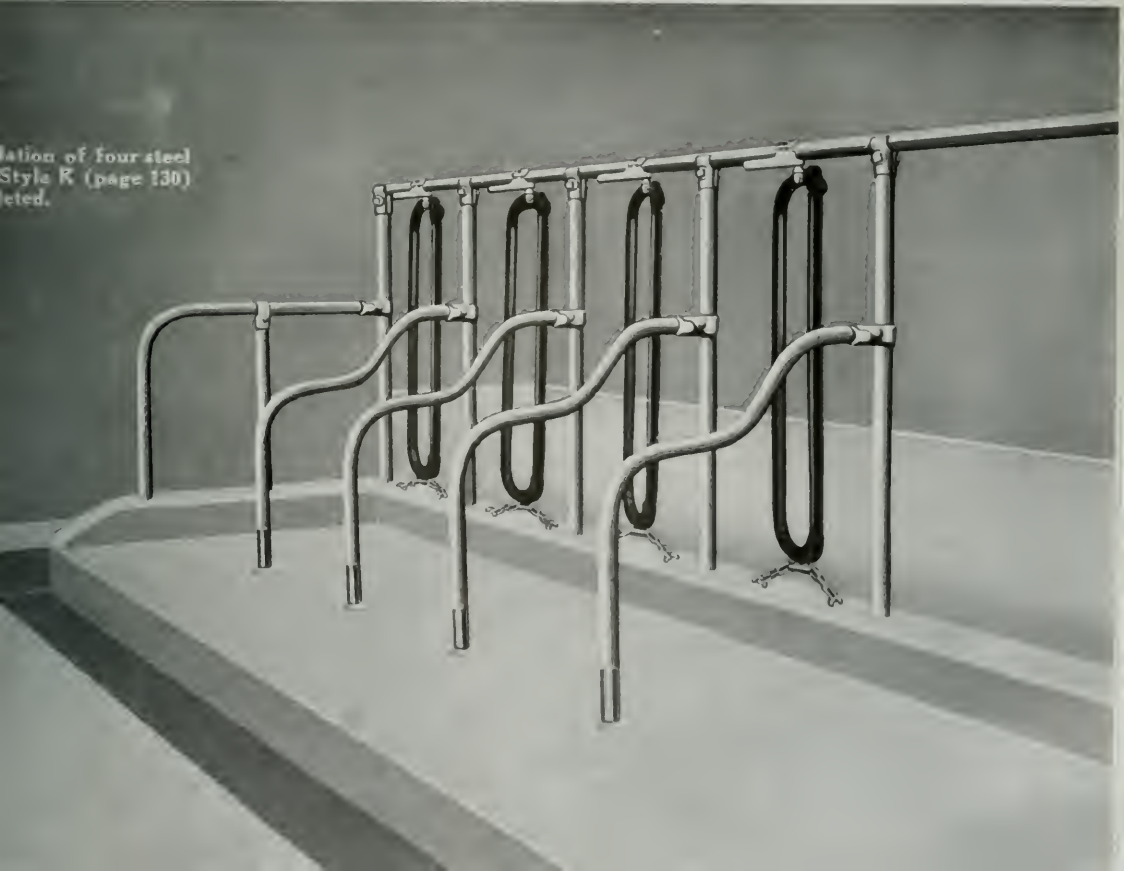


Barn of Hanford McKnight
Elmhill Farm, Apohaqui, N. B.

Beatty Barn Plan Service

We are always glad to supply to any prospective customer a suggestive floor plan showing the most suitable arrangement of the stock and equipment, with all the measurements clearly marked. We shall also be glad to give any information that is needed about the building of the barn.

If you are thinking of building or remodelling, we suggest that you first read this book through carefully, and thus get the benefit of the experience of many others, as set forth in the plans and photographs. After doing this, we suggest that you sit down and make a floor plan, showing the arrangement of your barn, changing this until it suits you. Send a sketch of this plan to us and we will go over it carefully, suggesting any changes that seem to us to be advisable, and will make a regular plan, drawn to scale, with every piece of equipment in its right place and all measurements marked. Feel free to ask any questions you wish. This service is here to assist you in every possible way, and we want you to take advantage of it. Many a time, we have saved a farmer half the price of his stable equipment by suggesting changes that have saved him money in building the barn.

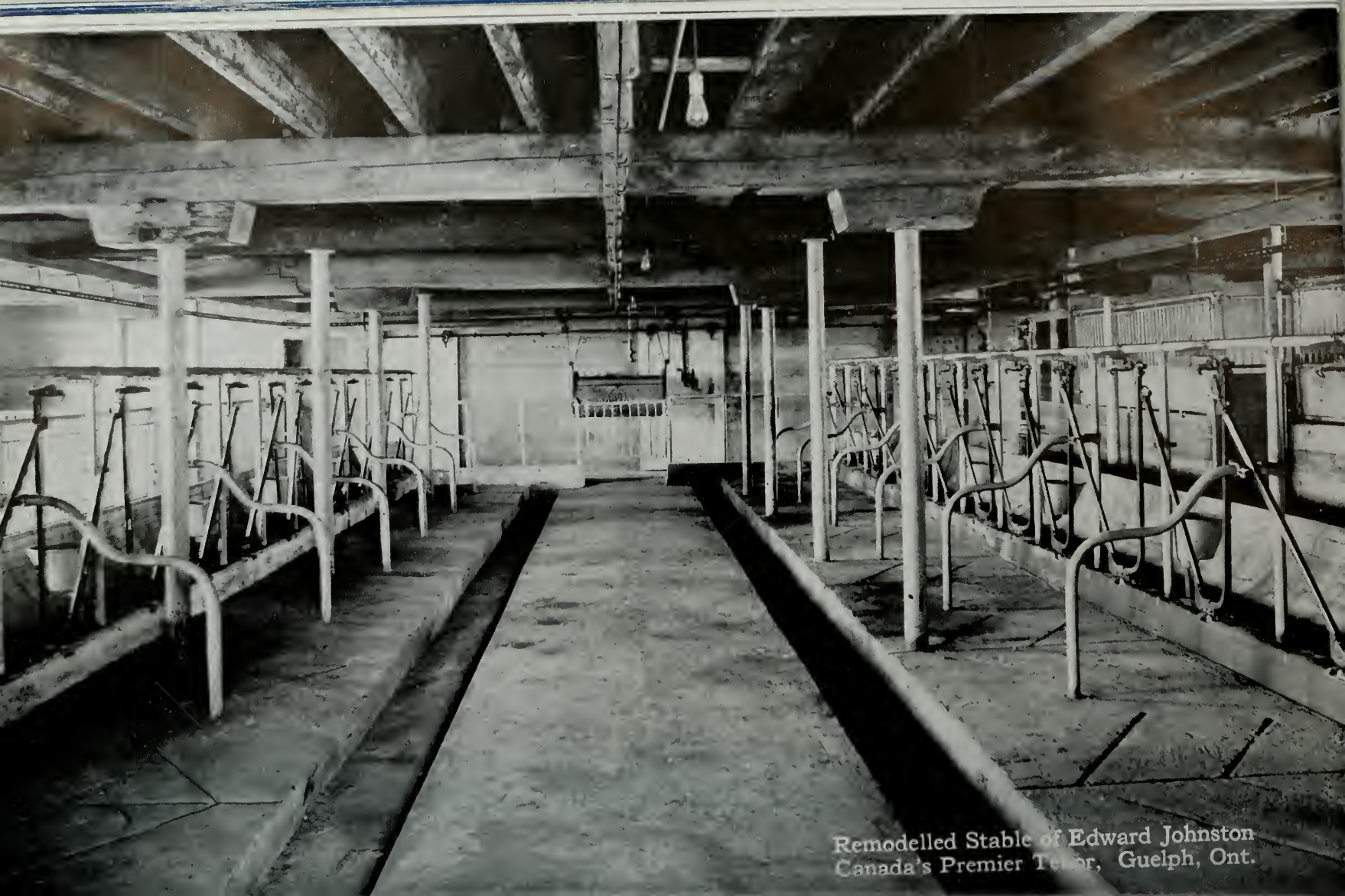
We strongly advise a careful study of the different standard plans in this book. These have been evolved by the officers of the Beatty organization after many years of experience, planning and equipping thousands of barns in all parts of Canada and also abroad. These standard plans embody the fundamental principles of barn construction and arrangement which it is the purpose of this book to discuss. The best results will undoubtedly be obtained in the building of new barns by using these plans with such adaptations as are required in each individual case.

Complete Set of Plans and Specifications

A complete set of building plans, covering the framing of the barn and all particulars of construction, with lumber bill and specifications of all materials, all ready to be placed in the hands of the builder or contractor for a quotation, will be furnished at slight cost. These are drawn up and blue printed especially for anyone who may ask for them, to suit the particular barn that is to be built. The charge is a nominal one, and only covers a fraction of the cost of doing the work.

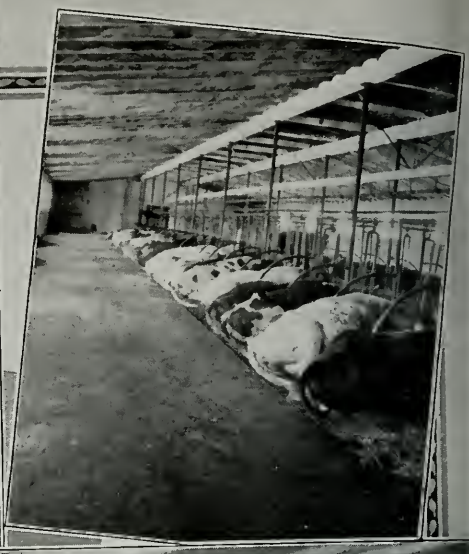
Our service to our customers starts with the preparation of this book. A mere catalogue, made up from photos of equipment set up in the factory, could be printed at comparatively slight cost. To secure from all parts of Canada the numerous photos in this book, to make the printing plates, print the book and mail it costs us over $1.00 per book. This does not include the many months devoted to its preparation by the officers of the Company, whose experience, apart from the actual cost of their time, is invaluable.

Our service also includes, without charge, the personal assistance of a Beatty representative, who will be glad to visit the man who intends to build or remodel, and give any advice or assistance in his power as to the best way of arranging and building the barn. As we have branches in almost every province, and a large staff of well-trained representatives, we are able to give this assistance at any time.



Remodelled Stable of Edward Johnston
Canada's Premier Te[illegible]r, Guelph, Ont.

Barn of Chas. Evans
Chilliwack, B.C.



Lying Comfortably in Beatty Steel Stalls
—Making Milk and Bigger Profits

Beatty Stalls Give Pasture Comfort in the Barn

It is a simple and well-proven fact that comfortable cows give more milk. This is not to be wondered at. We have taken the half wild cow of the open ranges and by years of care and generations of skilful breeding we have transformed her into a different animal. She has been changed into a most wonderful, complicated and delicately adjusted machine for producing man's most useful food—Milk. While her ancestor, with the wooly hair and the barrel shape, produced just enough milk for her calf, the modern cow produces up to 30,000 pounds of milk per year. Large herds, with an average production of 10,000 lbs. or more are not by any means uncommon in Canada to-day.

It is easily understood that an animal producing as much as twenty times its own weight in milk in a year, and maintaining its health, strength and reproductive power at the same time, needs all the comfort that can be given to it.

Practical dairymen know this to be a fact,—they get proofs of it every day. Chase a cow with a dog, and see the effect it will have on her milk flow! Every dairyman knows how sensitive the cow is to harshness and that she often will not let down her milk when milked by a stranger. Apart therefore, from any humane motives, it pays to give the cow as much comfort and freedom as possible. The nearer we can come to the ideal of giving the cow "Pasture Comfort in the Barn" the better results we shall get from her and the more profit she will make for us. In designing the Beatty Steel Stall and Stanchion nothing has been considered more carefully than this important question of Cow Comfort.

Why Beatty Steel Stalls are Comfortable

Beatty Steel Stalls stable the cow in comfort. Each cow is tied in the centre of the stall and can turn her head freely on either side to card herself, right back to the hips. She can lie down on either side in a natural position, as comfortably as she would lie in the pasture. She can get up and down as easily as if she were outside. There is no weight on her neck and nothing to cramp her movements. When she lies down to rest, her head is in a natural position.

Another reason for the cow being more comfortable is that she lies in a clean, dry stall. As fully described in the following pages, (see especially pages 120 and 121,) she is lined up to the gutter so that the manure falls in the gutter and not on the cattle stand. The cattle stand is built with a slope to the gutter and is considerably higher than the old-fashioned cattle stand. A clean dry place in which to lie and clean, dry bedding help a great deal in increasing the comfort of the cow.

The steel partitions on either side of her give each cow a place of her own, where she can lie down or stand up in peace. Her neighbors cannot crowd her, nor can she be forced to stand all night because her neighbors have lain down so close to her as to deny her room.

Another great advantage of steel partitions is that they prevent the cow from having her udder tramped on by some restless neighbor. Many a cow in the old-fashioned stable has lost a quarter of her udder from this cause, which is also responsible for many cases of garget in the udder.

Barn of B. McCaw, Smith's Falls, Ont.

Barn of City Dairy Co. Limited at New Lowell, Ont., owne
and operated by City Dairy Farms Limited, Toronto

Beatty Stanchions and Steel Stalls are more comfortable than chain ties and infinitely more comfortable than the old-fashioned rigid wood stanchions. The contrast between the rigid stanchion, which is no better than the torturesome pillory, and the modern stanchion like the Beatty, is well illustrated and described on pages 108 and 109.

Comfortable, contented cows give more milk; comfortable, contented stockers put on more flesh. This increase, whether of milk or beef, is largely profit. A cow quickly shows her appreciation for care and comfort in her contributions to the milk pail. A 10% increase in milk production is a conservative estimate of gain from comfortable cows, as compared with uncomfortable cows. A 10 per cent increase means a very good profit.

Beatty Steel Stalls are Sanitary

There has never been so much interest in milk, and everything that concerns its production, distribution and use, as there is to-day. Milk is now universally admitted to be the ideal food. All doctors recommend it; advertisements in every paper impress its value on the public mind. As a result, milk consumption is increasing rapidly. As one instance, we may quote that of the City of Toronto. In 1914 the City started to enforce certain regulations. In the years 1914 to 1926, the consumption of milk has increased nearly 300%, while in the same period, the population has increased only 22%. It is obvious that the people of Toronto are consuming greater quantities of milk, per family, than they were a few years ago.

The same thing is true of other towns and cities. Naturally, this growing sense of the value of milk as a food has led all the Government and Municipal health authorities to pay strict attention to the purity of the milk supply. Regulations are fast becoming much more strict than they used to be. Milk that will pass all tests is now bringing better prices than milk which cannot be guaranteed—a sign that the public not only *want* good milk, but are willing to pay for it. Cream grading regulations are now practically universal in Canada and the dairyman who supplies clean, sweet, sanitary cream is paid a premium while the seller of unsanitary cream is proportionately penalised.

This public demand for clean, sanitary milk and the higher prices being paid for first-grade milk and cream, have led many farmers to remodel their stables. In many cases this is certainly necessary if a high-class dairy product is to be produced. Nothing will do more to help the farmer produce the best milk and cream than a modern stable with cement floors and steel stalls.

One of the greatest advantages of steel stalls is that they are sanitary, thus minimizing the possibility of disease among the cattle, making the stable a much cleaner and pleasanter place to work in and a much safer place in which to produce such important food products as milk and cream.

They are sanitary because in the first place they do not soak up the liquid manure. Moisture cannot permeate the steel. There are no cracks in the surface of the steel to accumulate filth and no crevices to shelter vermin. They are sanitary also because of their open construction which allows the sunlight to flood the stable.

Steel Stalls Make Pasture Comfort in the Barn —And Add to the Farmer's Profits

Comfortable Cows Give More Milk — They are Comfortable in Beaver Stalls

Milk from Clean Cows and Stables Commands a Ready Sale and Better Prices

Sunlight is nature's great disinfectant and destroys germs. They are sanitary because the open construction allows fresh air to circulate freely throughout the stable.

Sanitary Steel Stalls and cement floors will do more than anything else to protect the herd against the ravages of tuberculosis. This dread disease dips deeply into the pockets of farmers everywhere and in an unsanitary stable spreads rapidly, until the whole herd is affected. The dairy cow is particularly susceptible to this disease. Tied up the greater part of the year in the stable, and required during each lactation period to give many times her own weight in milk, she has to withstand a tremendous drain on her vitality. Denied fresh air and sunshine, and exposed to the germs that abound in dirty stables, she falls a ready victim. A lot of concrete floor and steel stable equipment can be bought for the price of one good dairy cow.

Steels stalls and concrete floors will do much to stop contagious abortion, because they are so easy to keep clean. This disease is particularly one that can be remedied by pulling out the old unsanitary wood floors and partitions and putting in concrete and steel. Contagious abortion is known as a "stable disease", and can be stamped out by remodelling the stable.

Steel stalls are also easy to keep free from lice. As every farmer knows, a cow cannot keep up her production nor a stocker put on flesh, when pestered with lice.

Steel Stalls Save Work

Beatty Steel Stalls and Stanchions save work in many ways.

They line the cow up with the gutter, so that the dung falls in the gutter and not on the cattle stand. The cattle stand is kept clean, while the flanks and udders of the animals are not made dirty by contact with dirty stand or bedding. In a dairy stable where the flanks and udders must be washed off before every milking the saving of labour due to this feature is one of the outstanding advantages of the equipment. The cattle stand should be made the proper length to suit the breed of animals being stabled, (See page 69) and should be long enough so that the shoulders of the cows touch the stanchion and the manure falls in the gutter. When properly adjusted, the stanchion will not allow the animal to step forward and dung on the cattle stand. The loose, old-fashioned chain permits her to dung on the cattle stand and then lie down in it.

And then, again, the steel stanchions save work because they are so easy to tie and untie. You can tie four, or untie six cows in Beatty Stanchions while you would be handling only one with a cow chain. You can walk down the feed alley and shut the stanchions almost as fast as you can walk in front of them. You don't have to push up between two cows, wet with rain or snow, and put your arm round the wet necks while you fumble for the cow chain. This work is all done from the feed alley when you have stanchions and you do not have to crowd up between the cows at all. When the cows are out of the stable, the stanchions are left open, the moving leg resting against the partition, (see, for instance, page 82). The moving leg drops back to this position by its own weight. When the animal returns to her stall, she herself puts her head through the open stanchion to get her

Asylum Farm Barn

Barn of Lady Eaton
Eatonhall Farm, Eversley, Ont.

head in the manger, and slamming the stanchions shut is a matter of a few seconds. The Beatty Stanchion can be opened with a single gloved hand. The time that this single feature saves in the course of a year's work of tending to a herd of cattle, is surprising, as compared to tying them in chains. This feature is particularly appreciated in case of fire, when the whole stable, full of cattle, may be released in less time than would be required to get a chain tie off the neck of one terrified animal. The steel stanchion can be opened in a jiffy no matter what pressure the cow exerts on the stanchion.

The steel stalls are so easy to keep clean. They do not collect dirt like the more bulky wooden structures and can easily be brushed off. The open construction of the steel saves work in bedding down a row of stalls, or in hosing them down. Help is hard to get and expensive to keep, and it is important from a profit-making standpoint to cut the stable work to the minimum. The labour saved by sanitary steel stalls on a busy farm will in time pay for the whole equipment.

Easy to Install

When speaking of the saving of labour, it is well to mention also that steel stalls save much labour in building or remodelling the stable. They are ready-made, all ready to set up and a couple of men can erect them in a fraction of the time that a gang of carpenters would take to frame a wooden stable. In addition to the saving of time, there are fewer men to board. In fact, many farmers buy Beatty Steel Stalls because they can erect the equipment themselves.

You can open the BT Steel Stanchion with one Hand

You can slam the Stanchion shut in an Instant

Before the fire

Barn of Lot. Robertson
Williamstown, Ont. after the fire

Beatty Steel Stalls Are Durable

Beatty Steel Stalls make an everlasting stable job. Once installed, they are there for a lifetime. They will not rot, and there is little need for repairs. As we galvanize all Beatty Steel Stalls, Pens and Columns they are protected against rust. The first cost is the only cost.

The first steel stalls we ever made were put in the barn of the House of Refuge, Wellington County, near Elora, Ont., 25 years ago and are still giving as good satisfaction as when new. See page 126. A number of the other stables shown in this book have had their Beatty equipment in constant use for many years. See pages 102 and 128.

Wood stalls need constant repairs. They never last long, especially when used with cement floors. Cement is a direct enemy of wood, and where the two come together the wood will decay rapidly. The parts of the wood that come in contact with the cement absorb moisture from the wet concrete when the floors are laid. The wood swells pushing the concrete back, and when, as time passes, the wood shrinks again, a crack is left between wood and concrete which is always full of liquid manure and the posts soon rot off.

Every Beatty Stall Partition is doubly protected against acids in the manure, where the stall partition meets the concrete floor. This is done by means of a brass sleeve as described on page 125. The heavy coating of galvanizing plus the rustproof brass sleeve doubly protects Beatty Partitions against the attack of acids in the manure at the floor line.

It would be impossible to build wood stalls that would stand up after a few years like Beatty Steel Stalls without spending so much time, effort and money on them that it would be cheaper to get the steel in the first place.

Beatty Steel Stalls Are Fireproof

We have photos in our files of many barns that have burned to the ground without injuring the Beatty Steel Stalls with which they were equipped. Each edition of the Barn Book has shown several of these, but in this edition we include only that of Col. Robertson, page 97. All that were needed to make the equipment as serviceable as when new were some small fittings for the water bowls and stanchions and one new steel column. After the fire, the cows were tied in, and photographed by Mrs. Robertson, as shown. In this case the steel columns were filled with concrete. This enabled the columns to hold up, and prevented the timbers from falling on the stalls.

We know of Beatty-equipped barns which have gone through two fires, and the original equipment used in them is in service still in a third building. One such barn is that at the Boys' Farm and Training School, Shawbridge, Que.

As mentioned before, the steel equipment makes the task of liberating the animals a comparatively easy one in case of fire. It is so easy to undo the stanchions and release them.

Please note the statement made above with reference to filling the supporting columns with concrete. This will be found of the greatest value in case of fire. If concrete-filled, the columns will continue to stand. They will hold up the heavy girders and prevent the burning parts of the upper structure from falling down on the equipment and bending it.

Barn of
Mr. T.P. Loblaw, of Toronto
at Alliston, Ont.

Barn of
Mr. M. Carter,
Brampton, Ont.

Barn of
Mr. J.J. Grauer
Eburne, B.C.

Barn of G. Muys, Near Winnipeg.

Barn of Les Peres Trappistes
Oka, Que.

Barn of Ottawa Dairy, Ottawa, Ont.
after having been in constant use for over ten years

A Nicer Place To Work In

Who would not prefer work in a modern barn with modern steel equipment to work in the dark, dingy, old-fashioned and odorous stable? Who would not prefer the task of caring for the cattle with the assistance of the steel stanchions, stalls, water bowls, manure carrier, feed carrier and the other equipment, to the endless, wearying, monotonous drudgery of the old method?

Another point that should not be forgotten is that daylight lasts much longer in a steel-equipped stable. There are no dark corners. There are no solid partitions to shut off the light. The last rays of daylight go right through the whole stable, adding many useful hours. If, after daylight has gone, it is necessary to finish up by lantern light, one lantern, hung on a beam, will shed a light over a large area for the same reason,—there is nothing to stop the light getting into every corner.

There is less risk of fire, because the lantern can be hung up in one place instead of being carried round.

Boys on the farm delight in working with modern, sanitary equipment. Chores are no longer dreaded and life on the farm, in such surroundings, is attractive to them.

The ladies, who, on many farms, spend a considerable amount of time on the dairy stable, thoroughly appreciate the neat, clean, attractive steel equipment.

Apart from every other consideration, steel equipment pays because it makes the daily task more pleasant. It is a source of pride and satisfaction from the moment it is installed, and anything that gives a man that much additional pleasure in his daily work cannot be otherwise than a good investment.

Beatty Steel Stalls Improve the Appearance of the Stable

Beatty Steel Stalls improve the appearance of the stable. This point is well proved by the photos in this book. What wood-equipped cow stable would look as well after 14 years of continual use as the steel stable of Geo. N. Smith, shown on page 128. The open steel stalls show off the stock to the best advantage. Here again, the photos in this book are better proof than many words. The breeder of fine cattle is proud to take a visitor or prospective buyer into his stable to see his stock, and the value of his animals is enhanced by the way in which the steel equipment shows them off.

Furthermore, it is beyond question that the steel-equipped stable is a great help to the owner in selling his farm and getting a high price for it. Purchasers to-day are looking for modern, convenient, steel-equipped barns when they start out to buy a farm.

Clean Milk and City Requirements

It has been known for many years that the purity of the milk supply has a vital effect on the health of those who consume it, especially that of invalids and young children. Much of the tuberculosis in children has been proved to be of the bovine type, contracted directly from drinking the milk of tuberculous cows. It has also been proved that the cleanliness of the stable in which the cows are kept as well as the cleanliness of those who do the milking and handle it afterwards, affects the purity of the milk. This is so true, that certified milk (i.e milk with a certain minimum of bacteria), cannot be produced in anything but a steel-equipped stable without such a great waste of time and labour that the profits are eaten up. To the best of our knowledge, at the time of publication, all the certified milk and all the "special milk"—in other words, all the milk commanding the highest prices,— is produced in stables having cement floors and steel stalls.

Milk absorbs odours more quickly than other food stuffs. It is soon tainted by the bad odours of a dirty cow stable. Warm milk is known to be the best medium for developing disease germs. It pays, therefore, to watch carefully the conditions under which it is produced.

ORIGINAL

No. _____

Form 726--6m-7-27

DAIRY SCORE CARD

Name _____

Parish _____ County _____

Milk sold to _____

Shipping Station _____ Receiving Station _____ Time _____

DEPARTMENT OF HEALTH

Received in City by _____

Division of Food Inspection (MILK)

No. of Cows _____ No. of Milking Cows _____ Kind _____

Gallons of Milk produced daily _____

Date of Inspection ..... 192 ..	Max.	Allowed	REMARKS
Absence of disease on physical examination (2). Approved Tuberculin Test within the year (8).	10		Beatty Steel Stalls allow Sunlight and Fresh Air to flood the Stable, killing disease germs.
Quality of food (5). Quality of water (5).	10		Water Bowls provide good Water Beatty Mangers are easily kept Clean.
Cleanliness of Cows.	10		Beatty Stanchions and Aligning Devices Keep Cows Clean
Stable location (2), water tight floor preferably concrete (3), tight ceiling and walls (2), tie and manger (1), facilities for isolation, box stall (2).	10		Throughout this book good location is dealt with, and dry Concrete floors are recommended.
Stable ventilation (3). Air space for each cow : 400 c. f. (1), 500 c. f. (2), 600 c. f. (3). Light : 4 sq. ft. of glass per cow (4). 3 " " " " " " (3). 2 " " " " " " (2). 1 " " " " " " (1).	10		This Book gives complete information regarding proper barn Construction Windows and Ventilation
Stable cleanliness: floor, ceiling, walls and manger (3), whitewashed or painted and desinfected every year: Walls (2), Ceiling (3). No other animal (2).	10		Steel Stalls and Cement Floors are easily cleaned and are Vermin proof.
Condition of barnyard drainage (1), removal of manure every day to the field (6), or 50 ft. from the stable (3).	10		A Beatty Manure Carrier makes it easy to get manure right away from Stable
Milk room construction: Ceiling, floor tight, walls and ceiling, windows and screen (3), water supply (2). Cleanliness: Floor, ceiling, walls, vat and cooling water (5).	10		By keeping Flanks and Udders clean Beatty Stalls assist greatly in producing clean milk.
Cleanliness at milking time (3), utensil adequacy (2), small top or hooded pails (2), thoroughly washed and exposed to pure air (3).	10		These Precautions are largely neutralized, if the Stable itself is not clean and Sanitary.
Supply of ice (4). Prompt and efficient cooling and storage at low temperature (6).	10		
Total	100		A Stable with concrete floors and Steel Stalls is so easy to keep clean that no deductions are necessary.
Deducted for unsanitary or filthy condition			
Final score			
Inspector.			

NOTE. — For any unsanitary condition, in each case, special discounts may be made from the recorded points, according to the probable danger of infection, contamination or deterioration that may result from the continuance of the faulty conditions.

If filthy conditions exist, the score shall not exceed 49. If the water supply is exposed to dangerous contamination, if a dangerous infectious disease exists among or in the family of the attendants, or if a dangerous infection exists among the cattle, the dairy shall not be scored and the product shall be excluded from the market until the dangerous condition is removed.

If the recorded score is 80 or above the dairy is EXCELLENT.
If the recorded score is 70 or above the dairy is GOOD.
If the recorded score is 60 or above the dairy is FAIR.
If the recorded score is 50 or above the dairy is PROBATIONARY.
If the recorded score is 49 or below the dairy must be decidedly improved at once.

Public opinion has developed in this matter almost as rapidly as the movement has grown among farmers for having sanitary dairy barns. Public opinion, and equally as much, the influence of the leaders of the dairy industry, has been crystallized in legislation which makes it imperative to have a sanitary stable.

On the opposite page, we have shown a reproduction of a typical "score card" as used by Dairy Inspectors. This shows on what grounds milk and the stables in which it is produced are judged. Regulations such as these are rapidly coming into force in every milk-shipping centre, whether the milk is shipped to our own Canadian Cities, or across the Border. Under the heading "Remarks" we have briefly indicated how the ideas and equipment described in this book will help any dairyman—no matter where he may be—to maintain the conditions and produce the grade of milk which the public demand to-day.

The man who builds or remodels a stable to-day must have an eye to the strict modern requirements in the matter of the production of clean milk. If the movement has not affected him up to the present time. he must reflect that it can only be a short time before it will. If, in a few years, he finds that he has to tear out wooden floors and stabling, he will certainly wish that he had installed steel and concrete in the first place. To-day all governments and health authorities are advocating concrete floors and steel stalls, and are commending the men who equip their stables accordingly.

Beatty Steel Stalls Pay for Themselves

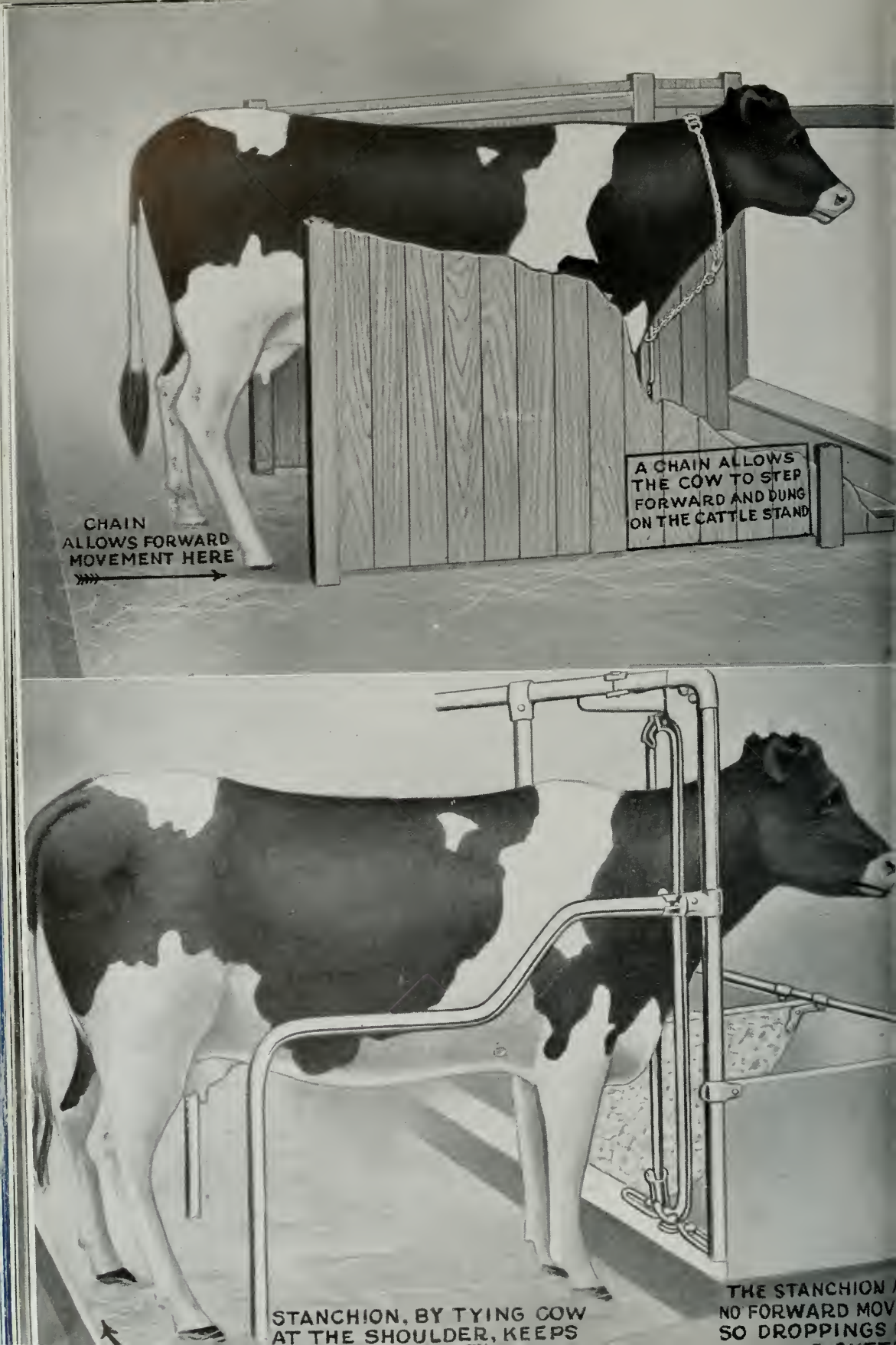
The many ways by which Beatty Steel Stalls pay for themselves have been indicated in the past few pages. By adding to the comfort of the cows and increasing their production; by guarding their health and checking disease; by reducing labor and frequently enabling the farmer to dispense with hired help entirely; by adding to the life of the stable so that it will last a lifetime without repairs; by making the stable sanitary so that dairy products of the highest grade can be produced and marketed at a better price; by adding to the value and saleability of the farm; by increasing the pleasure that the farmer and all his family take in their daily work; and by improving the appearance of stock in the stable—in all these ways the steel stalls pay for themselves.

One of the best proofs that steel stalls pay for themselves is the fact that practical dairymen are invariably the first to put them in. Men who make their whole living from the milk pail are the ones who endorse the steel equipment most heartily. Walker Sons, Limited, of Walkerville, whose immense dairy plant is shown on page 3, the Ottawa Dairy, the City Dairy, Toronto, and many others use steel stalls because steel stalls pay and because they return a liberal cash profit on the investment. We could fill this book with the names of men, in dairying on every scale from large to small, who have found the same thing to be true.

While we have used the words "Steel Stalls" we should like to add that all the remarks in the foregoing pages apply with equal force to Steel Pens. These are separately described on pages 146-187.

Steel stalls are no longer an innovation, and in no sense are they an experiment or a fad. They are a practical necessity on every farm where cattle are stabled, whether the number be large or small.

By every means in our power, we try to insure that Beatty Equipment will be as perfect as it is possible to make it. Beatty Equipment has at the back of it 53 years of experience in supplying the needs of the Canadian farmer. The best materials for the purpose are always used and careful inspection insures that standards are maintained after careful experiment and tests under actual working conditions have shown what those standards should be.


CHAIN
ALLOWS FORWARD
MOVEMENT HERE
A CHAIN ALLOWS
THE COW TO STEP
FORWARD AND DUNG
ON THE CATTLE STAND
STANCHION, BY TYING COW
AT THE SHOULDER, KEEPS
THE STANCHION
NO FORWARD MOV
SO DROPPINGS

Stanchion Tie vs. Chain Tie

The Beatty Steel Stanchion has so many advantages over the old-fashioned chain tie that a farmer should at least put in the stanchions, even if he cannot afford any other equipment.

1. The Beatty Stanchion ties the cow at the shoulders, so that her neck and head are out over the manger. Therefore, the cattle stand can be shortened and made equal in length to the distance between the cow's shoulders and her hindquarters. The chain tie, on the other hand, ties the cow behind the horns and the length of the cattle stand is made from one foot to eighteen inches longer. Chain ties, therefore, require the cattle stand to be from 12 inches to 18 inches longer, for the whole length of the barn, and there are at least two rows of cattle in the average barn. This waste of space and material will much more than pay for the stanchions.

2. The Beatty Stanchion lines the cow up to the gutter and prevents her from dunging on the cattle stand, providing the cattle stand is made the right length, because the cow is tied at the shoulder and cannot step forward. Consequently, the cattle stand is kept clean. This means that the cow does not lie down in the manure, getting her flanks and udder caked with it. Cows, therefore, do not need cleaning so often, thus much time is saved. Also the cows are dryer and more comfortable, and comfortable cows give more milk.

It is impossible to regulate the cow in this manner with a chain tie. No matter how much the chain is shortened, nor how tightly the cow is tied to the stall, she can still move forward on the cattle stand 6 inches to 8 inches. It is a natural tendency for any cow to step forward and dung on the cattle stand and the chain tie permits her to do so. The dung gets on the cattle stand; the cow lies down in it; her flanks and udder get caked with manure, and the farmer has hours of unpleasant work for nothing.

3. The Beatty Stanchion ties the cow in the centre of the stall, so that she can lie down on either side in comfort. It also allows her to turn her head right round on either side and card herself right back to the rump. The cow that is tied to one side of her stall by a chain can only lie down in comfort on one side or card herself on one side.

By tying the cow at the base of the neck, the stanchion gives all the freedom necessary for her comfort and at the same time, keeps her clean.

4. The stanchion is by far the easier and quicker form of cow tie for the farmer. It is so quickly tied and untied. You can untie four cows, or tie up six, while you are handling one in chains.

With stanchions, you slam them shut from the front passage. This does away entirely with the disagreeable chore of crowding up between wet cows, covered with sleet and snow, putting your arms around their wet necks and groping for the chain. For its comfort, cleanliness and convenience, the stanchion is now being recognized as the standard cow tie. Every year its sales increase, as farmers realize the many advantages it possesses when compared with the old-fashioned chain tie.

In the Comfortable Swivel-hung Beatty Stanchion the Cow has perfect freedom to turn her head.

In the Rigid Wood Stanchion she is clamped in one position. The owner pays for this discomfort in the milk pail.

The Beatty Stanchion vs. Rigid Wood Stanchions

1. Reference has already been made to the *comfort* that the Beatty Stanchion gives the cow. She is free to lie down on either side. She can turn her head and card herself, right back to the rump, on both flanks. The movements of her head are not restricted. Except for the fact that she is tied in her stall, she has all the freedom and comfort that she would have out in the pasture, and cow comfort pays. On the other hand, it would be hard to invent a more uncomfortable form of cow tie than the rigid wood stanchion. For hours on end the cow has to stand, clamped almost in one position. She cannot turn her head either when standing or lying down. Years ago, malefactors were imprisoned in the pillory in very much the same position as that of a cow in a rigid stanchion. Surely, if we want cows to do their best, and yield us the best profit of which they are capable, it will not pay to treat them as criminals were treated 150 years ago! A cow cannot talk, but she can, and does, show in the milk pail her disapproval of such methods.

2. As fully described on pages 118 and 119, Beatty Stanchions are fitted with an aligning device which enables the farmer to adjust the length of the cattle stand to suit animals of different lengths. No matter how carefully the length of the cattle stand is planned, it cannot continue to suit all animals. Older cows are sold and younger ones take their places. An extra long or an extra short cow is purchased and then the cattle stand is either too short or too long. With the Beatty Stanchion, equipped with the Aligning Device, this condition can be met in a few seconds and the stanchion moved forward or back to suit the length of the animal.

Rigid wood stanchions possess no such adjustment. The cow that is too long will stand down in the gutter and then tramp the manure up on to the cattle stand. The short cow will be forced to dung right on the cattle stand. This causes more discomfort to the already most uncomfortable cow, and gives the man who wishes to produce sanitary milk—the only kind of milk that it pays to produce nowadays,—hours of extra work in washing off the cows' flanks and udders.

3. As shown on page 112, the Beatty Stanchion has a back and forward movement This adjustment permits the cow to rise easily. A rigid wood stanchion has no such adjustment. A cow that is weak after calving will often have to make several attempts to get up, when tied in a wood stanchion, because the stanchion will not move away from her shoulders as she pushes forward when getting up.

Even if the wood stanchions are already in the stable, it will pay any farmer to replace them with Beatty Steel Stanchions. The increase in milk obtained from the more comfortable and contented cows will pay for them in a short time. The more sanitary conditions in the stable thus obtained and the labour thus saved are so much clear gain from the start.

Swivel Connection and Lock of Beatty Stanchion

Bottom Construction Beatty Stanchion

The Beatty Steel Stanchion— Fig. 607

(Patented)

The Beatty Stanchion is strong, and a stanchion must be strong. Strength to hold the animal is the most important requisite of any cow tie.

Few purchasers realize how great a strain animals will exert by pressing forward with their shoulders against the stanchion when feeding. A stanchion is like a yoke or collar. The cow will frequently exert her whole strength against the sides. The wedge-shaped neck of the cow puts a very heavy spreading strain on the stanchion. The frame of the Beatty Stanchion extends solidly across the top and solidly across the bottom. The moving leg of the Beatty Stanchion hinges and locks at one side and not in the centre of the stanchion. The greatest strain that a stanchion has to bear is exerted at the top where it is attached to the stall and at the bottom where it is attached to the cement. The hinge and lock must be kept in adjustment if the stanchion is to work satisfactorily. If the Beatty Stanchion were hinged and locked in the centre, as many are, directly opposite the points where it is attached at top and bottom, the tremendous strain of the cow's shoulders would fall on the stanchion at the working points—just where correct adjustment is most essential. By making the Beatty hinge at the side and lock at the side, the heaviest strains are made to fall on solid steel, where there is nothing to get out of adjustment. A stanchion like the Beatty, that hinges and locks at the side, will have double the strength and last twice as long as one that hinges and locks in the centre.

The hinge is a heavy, ribbed, malleable casting which entirely surrounds the frame and is as strong as the frame itself. Similarly, at the top, a strong malleable iron casting surrounds the latch and the frame. With ordinary usage, it is impossible on this account to spring any part of the Beatty Stanchion out of adjustment.

The stanchion is clamped on the head rail by a strong, two-bolt malleable aligning device, which is shouldered for the swivel of the stanchion so that the strain of the stanchion falls on the shoulder and not on the bolt.

The Beatty Stanchion is attached to the stall by a swivel at top and bottom. A stanchion that is swivel-hung at the top will keep the cow much cleaner than a stanchion that is chain-hung at the top. A stanchion that is chain-hung at the top allows the cow a forward movement, so that she can dung on the cattle stand. The swivel has the further advantage of allowing the stanchion to turn farther and more freely than a chain, thus giving the cow more liberty in turning her head.

The Beatty Stanchion is simple in construction with no complicated working parts to get out of order. This simplicity means that very few holes have to be drilled through the frame. Bolts and rivets used are ⅜-inch. The Beatty Stanchion, (7½-inch size), weighs 18 lbs., which is much more than the weight of other stanchions on the market.

The Beatty Stanchion is made of U-bar, not tubing. This shape of material is stronger than tubing and will stand greater strains than tubing,—even tubing of the same weight. It is also more sanitary, because it is open and can always be brushed out.

The lock on the Beatty Stanchion works by gravity. It drops into position by its own weight, and cannot go wrong.

Screen Swings Forward at Bottom

Moving Leg Can Drop to Floor

Moving Leg Drops To The Floor

The moving leg of the Beatty Stanchion opens right down to the floor. Very often, an animal, especially if it gets into the wrong stall, will put one leg through the stanchion and when driven back, will trail its foot over the moving leg. A Beatty stanchion cannot be injured by this treatment. All the cow can do is to knock the moving leg to the floor and you can quickly turn it up again, as shown on the opposite page. Stanchions that are hinged in the centre and chain-hung will not open to the floor, and give continual trouble.

This is a most important point. Stanchions on which the moving leg will not drop to the floor will soon get sprung out of adjustment, or the hinge will be broken, thus causing inconvenience and expense.

If a cow should happen to get her head on the wrong side of the Beatty Stanchion, the swivel at top and bottom enable the attendant to swivel the stanchion round and tie her without driving her back and getting her in the right position.

Easy To Open

The Beatty Stanchion both hinges and locks on the same side. For this reason, it only requires one hand to open it and guide the moving leg on to the stanchion rest. You can stand in one stall and open the Beatty Stanchion in the next, or, if preferred, open it from the front passage. Consequently, you can keep away from the cow when she throws her head around to turn out of the stall. You can open the Beatty Stanchion even when wearing gloves or mitts, no matter how much pressure the cow is exerting against the lock. A stanchion that opens easily is most important at all times and particularly necessary in case of fire.

It requires all the skill of two hands to open some makes of stanchions,—one hand to open the latch and the other to put the moving leg in the stanchion rest. In such cases it is necessary to stand in the same stall as the cow.

Another great advantage of the Beatty Stanchion is that the latch is protected from the animal's horns by a malleable casting. Therefore, the Beatty Stanchion is cow-proof, whereas stanchions with exposed latches cannot be cow-proof.

Permits Cows to Rise Easily

The Beatty Stanchion is attached at the bottom by a swivel and two short chains to a cement clevice. When the cow rises, the stanchion moves forward with her a distance of 8 ins. This gives the cow perfect freedom in getting up. The illustration on the opposite page shows this bottom adjustment. It is much more difficult for a cow to rise when tied in a stanchion that has not this forward movement.

High Level Curb

Owing to the close connection of the Beatty Stanchion with the curb, this can be built up level without interfering with the comfort of the cow. This saves a lot of feed because the cow cannot nose it back from the manger. It is neater in appearance, less difficult and less expensive to build than the cut-out curb.

Some stanchions are V-shaped at the bottom, so that unless the curb is cut out and the stanchion lowered they are not comfortable for the cow. Therefore the high, level, feed-saving curb is sacrificed.

The cow can turn her head freely in an
direction when tied in Beatty Stanchion

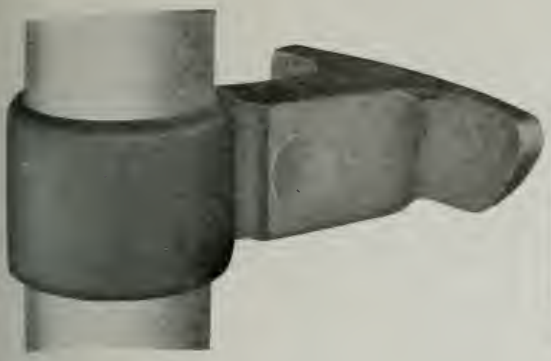


Fig. 530
Stanchion Rest for Double Stalls

Fig. 441
Stanchion Rest

Perfect Comfort and Clean Cows

The comfort of the cow, when tied in a Beatty Stanchion, is abundantly illustrated throughout this book. The swivel connections at the top and bottom allow the stanchion to turn completely around, so that the cow may turn her head and card herself at will. See the opposite page.

At the same time, there is no back and forward movement at the top of the stanchion. The cow cannot move forward to dung on the cattle stand, if the cattle stand is built the proper length. In this respect, Beatty Stanchions are greatly superior to chain-hung stanchions, which allow the cow so much back and forward movement that she is continually dunging on the cattle stand. Chain-hung stanchions are also objectionable on account of their constant rattle and noise.

The bottom of the Beatty Stanchion is square, with the corners slightly rounded. There is nothing sharp to hurt the cow. This square bottom gives the cow much more room than the V-shaped ends sometimes seen, which are very uncomfortable. The flat bottom allows the cow to put her head down as low as possible.

The open construction of the U-bar steel affords no shelter for vermin.

Beatty Stanchion Rest—Fig. 441

(Spin) (Patented)

The moving leg of the Beatty Stanchion, when open, rests on the stall partition. The partition clamp is also the stanchion rest. This leaves a space, almost a foot wider than that on other stanchions, for the cow to put her head through. There is no dangerous stanchion rest on the moving leg of the stanchion. A stanchion with the stanchion rest on the moving leg is dangerous. The cow is liable to strike her eye on the stanchion rest, if it is on the moving leg. There is no danger of this with the Beatty Stanchion, as the Stanchion Rest is on the partition. When you open the stanchion, the moving leg drops in place.

The Beatty Stanchion opens so wide that there is no chance of the cow putting her head through at the wrong side of the moving leg. By extending over into the next stall, the moving leg blocks the space between the post and the next stanchion, and helps to prevent the neighbouring cow from putting her head in the wrong place. The stanchion rests are put in position on the partitions in our factory.

If double stalls are being used, a special stanchion rest, Fig. 530, is provided to be attached to the posts where there are no partitions. This is in place on the posts when they are shipped.

All Beatty Stanchion Rests are galvanized.

Fig. 607—(Sack)—Beatty Steel Stanchion

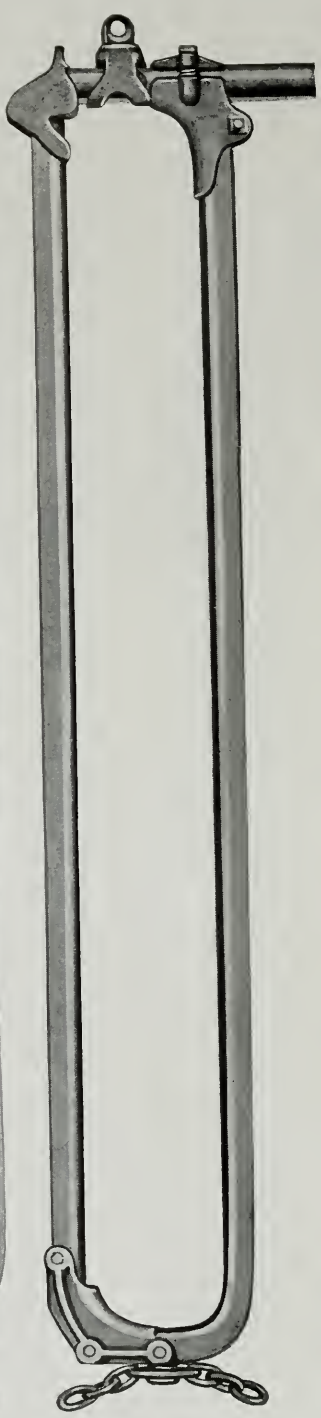


Fig. 608—(Sattire)—Beatty Adjustable Stanchion

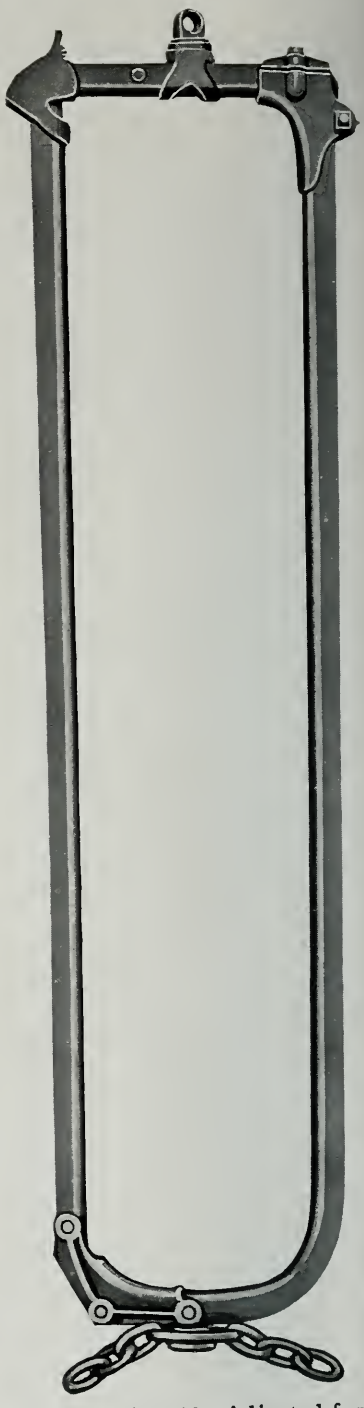


Fig. 608—Adjusted for Large Animal

SPECIFICATIONS

The Beatty Steel Stanchion—Fig. 607

(Sampa) (Patented)

The Beatty Stanchion is made of heavy, high-carbon, U-bar steel $\frac{5}{32}$-inch in thickness. The 9½-inch size is nearly $\frac{5}{32}$-inch in thickness. The sides of the stanchion are 1¼ inches wide and $1\frac{5}{8}$ inches deep. The material in the ordinary stanchion weighs 1½ lbs. per foot. It will stand even greater strains than tubing of the same weight.

The Beatty Stanchion is made in widths of 6½ inches, 7½ inches, and 9½ inches (inside measurement). Stanchions with 5-inch or 8-inch neck space are made by using wood linings on the 6½ inch and 9½ inch sizes respectively.

The 7½-inch size is usually sold, and is always shipped unless some other size is specified. It can also be adjusted to suit younger stock by means of wood strips. We supply the wood strips at a small extra charge. The length of Beatty Stanchions is 4 feet 4½ inches over all, exclusive of attachments at top and bottom. The distance from the top of the curb to the underside of the headrail should be 4 feet 6 inches.

The 7½ inch Beatty Stanchion weighs 18 lbs.; the 6½ inch stanchion weighs 17½ lbs.; and the 9½ inch size, 21 lbs. All stanchions are finished in green.

SPECIFICATIONS

The Beatty Adjustable Steel Stanchion—Fig. 608

(Sonda) (Patented)

The specifications for the material in the Beatty Adjustable Stanchion are the same as those given above for our standard stanchion, Fig. 607. The Beatty Adjustable Steel Stanchion is made in one size only and is adjustable in width from 5½ inches to 8½ inches. It weighs 21 lbs.

Beatty Standard Stanchions will meet the great majority of cases but for those farmers who have a few very small animals to tie up in the same stable with some very large ones we recommend the Beatty Adjustable Stanchion. There is also the condition to be considered where the small animals grow and the large ones are sold and then replaced by smaller stock again. In such cases, it is convenient to have a few of the Beatty Adjustable Stanchions among the number. If two or three of these are used in a stable, combined with the main outfit of standard stanchions, the situation can be conveniently handled.

The Beatty Adjustable Stanchion is similar in design to the standard stanchion, Fig. 607 It has the same strong frame, extending solidly across the top and bottom. The moving leg opens right down to the floor. The lock is the same. The swivel connections at the top and bottom are the same. The bottom is square with rounded corners. Like the standard stanchion, Fig. 608 hinges and locks on one side. It is attached to the stall at top and bottom in the same way.

The stanchion is constructed to be just as strong when adjusted for a large animal as when adjusted for a small one. No matter how it is adjusted, it hangs centrally in the stall. The adjustment can be made easily and quickly. Castings are made of malleable iron and are heavy.

Fig. 191
Beatty Aligning Device for Square Headrail

Fig. 192
Beatty Cement Clevice

The Beatty Aligning Device—Fig. 191

(Sumad)

All Beatty Standard Cow Stalls, as shown on pages 130, 132 and 134, are supplied complete with the new Beatty Rapid-Shift Aligning Device. This adds greatly to the value of the stalls, by increasing the comfort and cleanliness of the cow, as described and illustrated on pages 120 and 121.

No matter how much the herd may change, every cow can easily be kept lined up to the gutter at all times. As soon as it becomes apparent that the cattle stand is too long or too short for the cow, the stanchion can be moved backward or forward in a couple of seconds.

The new style Beatty Aligning Device has this great advantage over other types, namely, that it is not necessary to loosen any nuts or move any bolts in order to adjust the position of the stanchion. All that is necessary is to push up the small catch and push the stanchion a notch or two one way or the other as may be required. The simplicity of this operation makes it easy to keep the cattle stand correctly adjusted for every cow in the stable, even at times when there is much changing around in the herd. There is no need for a wrench or other tools. The change can be made at once, without even removing gloves or mitts.

Another great improvement in the Beatty Aligning Device is that it is made to fit a square headrail. One big trouble with the older styles of aligning devices was that it was almost impossible to prevent the aligning device from turning on the headrail or to prevent the headrail itself turning with the leverage caused by the weight of the cow's neck on the end of the aligning device. The square headrail overcomes both of these difficulties. The headrail is immovable in the stall clamps and the aligning device cannot possibly turn on the headrail.

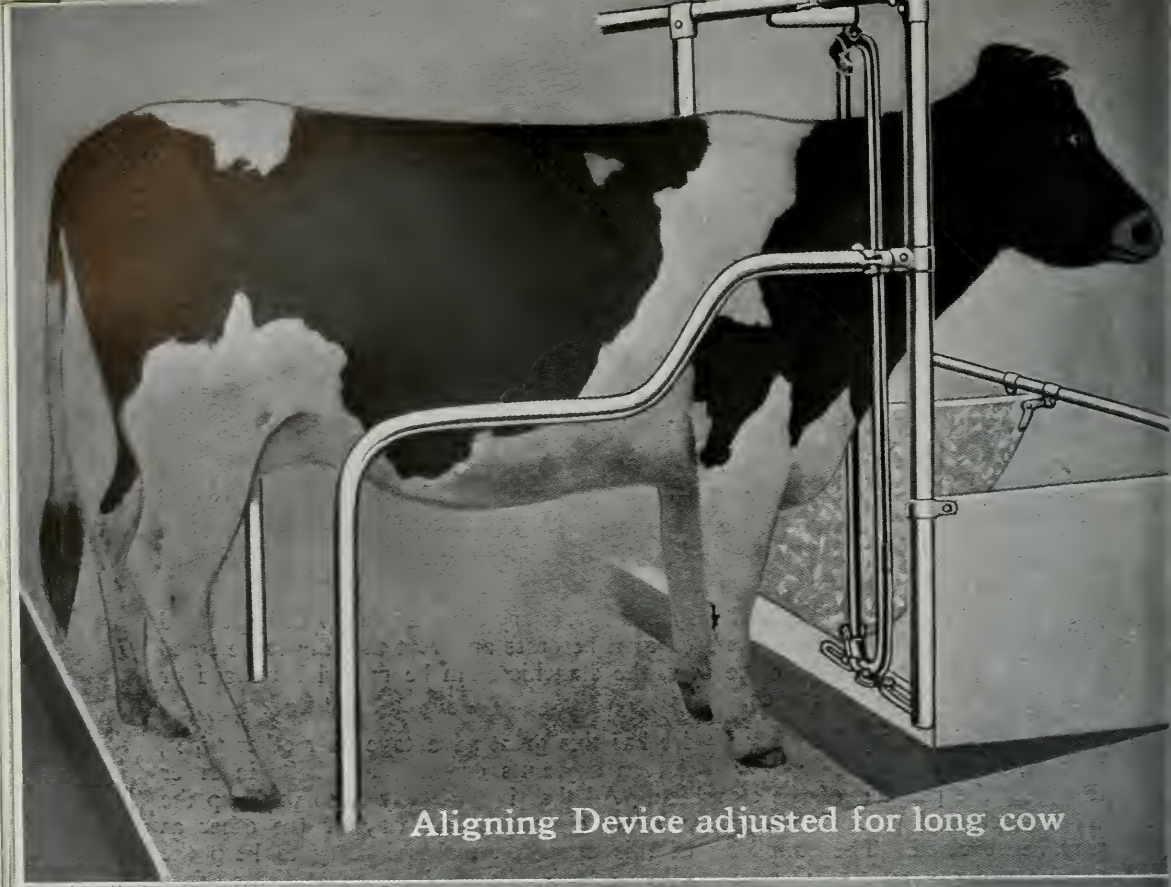
The Beatty Rapid Shift Aligning Device is made of malleable iron and is very strong. It allows a backward and forward range of 11 inches. The slots in the aligning device that hold the stanchion swivel are spaced 3¼ in apart. Fig. 191, is made so that it will support and hold the pipe for a milling machine. A clip for this purpose, to attach to the aligning device is supplied at small extra cost. Fig. 191, weights 2 lbs. and is galvanized.

The Beatty Cement Clevice—Fig. 192

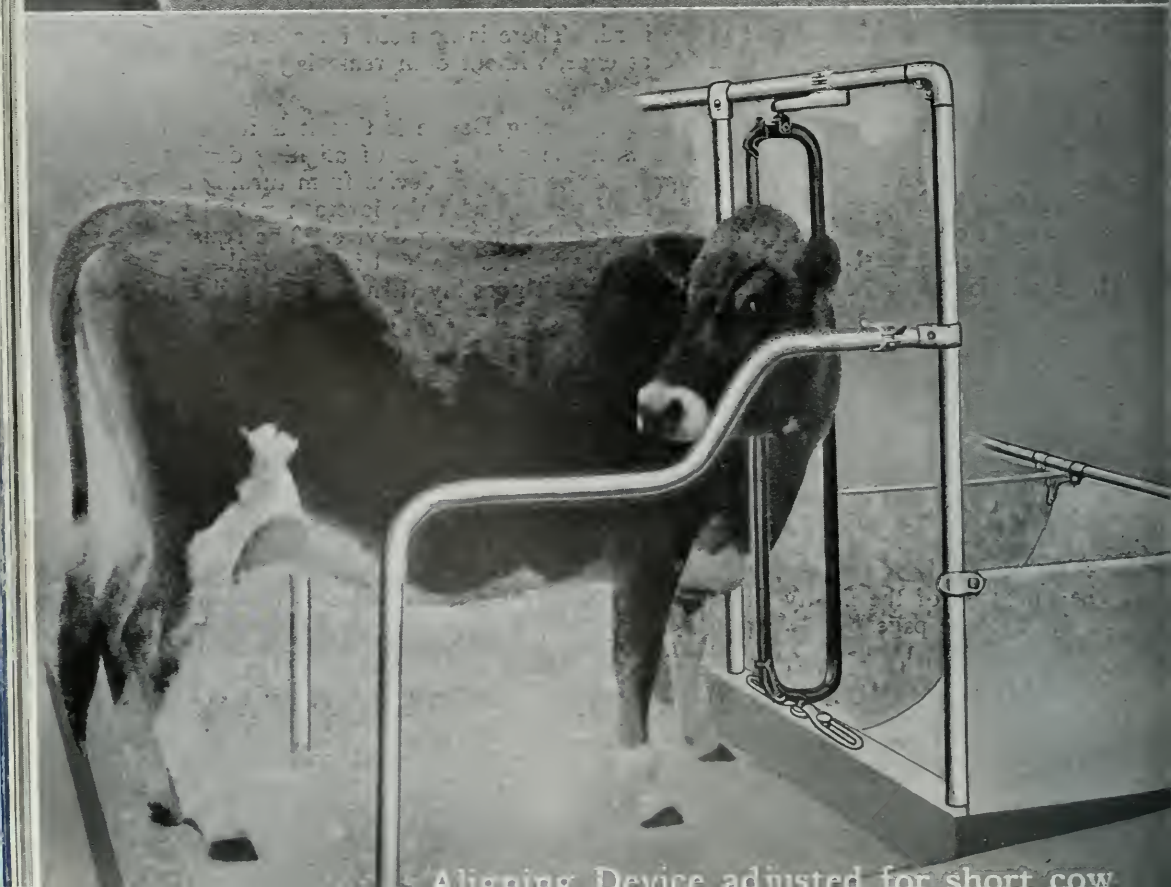
(Sonac)

The simplicity of the Beatty Stanchion Anchor, or Cement Clevice, is illustrated on the opposite page.

There is nothing to get out of order—no difficulty in installation. Merely set the anchor in the centre of the concrete curb and attach the link at the end of each of the stanchion chains to the hooked portions which stand above the surface of the cement.



Aligning Device adjusted for long cow



Aligning Device adjusted for short cow

Every Cow Stall Should Have An Aligning Device

There is an ever-increasing demand for cleaner and better milk. In many places, the number of which is constantly growing, clean, carefully-produced milk and cream command a better price.

This is only right and just. It is obviously unfair that a dairyman who takes no trouble to keep his cows, his stable and his milk clean should get the same price for his product as the man who looks after these points carefully and supplies a thoroughly sanitary product. All the leading Health Departments and Sanitary Authorities insist that milk be kept free from all contamination from manure, and prohibit a dairyman from shipping if his milk is found to be dirty.

It is for this reason that an aligning device is such a vitally important feature of a cow stall, and it is because of this that the farmer is looking for added features in the cow stall which will enable him to keep the cows clean. We realized that no cow stall is really complete in these days without some device which would keep the cows lined up to the gutter, so that the dung would fall in the gutter, where it belongs. The Beatty Aligning Device, as described and illustrated on pages 118 and 119, is therefore a part of every Beatty Standard Steel Cow Stall.

The construction and use of the Beatty Aligning Device have already been described, so that the great advantage of having one on every stall will be easily seen. It allows the stanchion to be moved backward or forward to accommodate long or short cows, so that all the dung falls in the gutter and not on the cattle stand.

This allows the farmer to adjust both long and short cows to a cattle stand of average length. If there is not some adjustment of this kind on the stall, it is impossible to build the cattle stand to accommodate the herd. It is not possible to establish one length that will suit all animals, nor to build it a fixed length which will suit the changes in the herd that must be made from time to time.

With the Beatty Aligning Device on every stall, it is only the work of a moment to move the stanchion another notch nearer to the gutter, as soon as it is found that the manure is dropping on the cattle stand.

The work that this will save the farmer amounts to hours every week. If milk is to be kept clean and free from contamination, the cow's flanks and udder must be cleaned off. If the cow has been dunging on the cattle stand, and then lying down in the manure for several hours, this is an extremely slow, tedious and unpleasant job. With a properly built gutter, a cattle stand of good average length to suit the herd, and a little care in keeping the stanchions adjusted forward or back as may be found necessary, the cows' flanks and udders can be kept clean. This is made possible by the use of the Beatty Aligning Device.

Another great advantage of aligning devices is that they add a great deal to the comfort of the cow. The cow is cleaner and dryer and the bedding remains in far better condition.

Under modern conditions, a cow stall is not complete without an efficient, easily adjusted aligning device. Make sure that you get it on any equipment that you may buy.

Fig. 404
Beatty Stall Clamp.
Showing how bolt pass
through stall post. Beat
Clamps do not depe
on friction.

½ in. x 3 in. bolt on
Fig. 404 Clamp.

The Beatty Bolted-Through Stall Clamp

(Patented)

No steel stable equipment is stronger than the clamps that hold the posts, partitions and headrail together. This point is therefore worth your attention.

The Beatty Clamp is held in place by one big, solid bolt, which goes right through the stall post or partition. Note the smooth, sanitary construction. The clamp does not depend upon friction to hold it. The big bolt, going right through holds it solid. Bolted-Through Clamps are much stronger than friction clamps, in which the bolts do not go through the tubing. They are more easily tightened up, there is much less danger of coming loose and no trouble with the thread stripping. The illustration on the opposite page shows this clamp (a little less than actual size), with the bolt and nut used to attach it to the stall.

Insist on getting Strong Clamps—Bolted Thrcugh

Beatty Stall Clamps are made of malleable iron. They are as heavy and strong as the steel tubing of the stalls. We do not use light, malleable friction-grip clamps on Beatty Steel Stalls. Few people realize the amount of strain that a cow stall has to bear. One thing is certain, the points of connection between one part of the stall and another must be strong and secure, or the stall cannot possibly give satisfaction.

Note the strength and neatness of Beatty Clamps as you read this book. Fig. 404 shows the clamp which attaches the stall post to the square headrail. Note how the headrail is held in the clamp so that it cannot possibly turn. The clamp which attaches the partition to the upright stall post is similar in design, but is made to take the round post instead of the square headrail Note the smooth, sanitary construction of these clamps, with the flanges overlapping to keep out the dust and dirt.

Beatty Clamps are always put in place on the stalls before they are shipped.

All Beatty Clamps are galvanized by the same process as that described on page 127. In order to prevent the heat of the molten zinc from injuring the malleability of the clamps and making them brittle, they are given a special heat treatment before being galvanized. This enables the malleable to retain its valuable qualities of strength and toughness.

Note the neat appearance and uniformity of partitions built on special machine

Beatty Triple Curve Partitions—With Brass Sleeve—Fig. 755

The Beatty Standard Stall now includes the greatest improvement in cow stall construction since the introduction of galvanizing. This improvement is the heavy brass rust-proof sleeve, shown on the partitions in the illustration on the opposite page. See also pages 130, 132 and 134.

A heavy coating of galvanizing is one of the best finishes known for the protection of steel. As already explained, Beatty Steel Stalls are heavily galvanized. To protect Beatty Stall Partitions still further against acids in the manure at the floor line, (where they are liable to come in contact with the manure,) every partition is fitted with a 9-inch brass sleeve. This sleeve extends one inch below the floor and eight inches above the floor line. Before the sleeve is fitted to the partition, it is heavily coated on the inside with pitch. It is then pressed on and securely fastened to the partition. This gives the partition a triple protection against corrosion: first, the galvanizing; second, the coating of pitch; third, the heavy brass sleeve. For years we have been testing brass sleeves in stables, under actual working conditions, and know that they are the greatest improvement in cow stall construction since the introduction of galvanizing. Copper roofs last for generations. Brass is a combination of copper and tin and is a metal that manure acids cannot destroy.

The Beatty Triple Curve Partitions are an invaluable protection to the cow. We strongly recommend single stalls, that is to say a stall in which every cow has a partition on both sides. The cost of the extra partitions to make single stalls is not great, and they prevent a good cow from having her udder ruined by the trampling of her neighbor. They pay for themselves many times. The partitions are a great help in getting the cows tied in the stalls. After being tied a few times, each cow learns to know her own place.

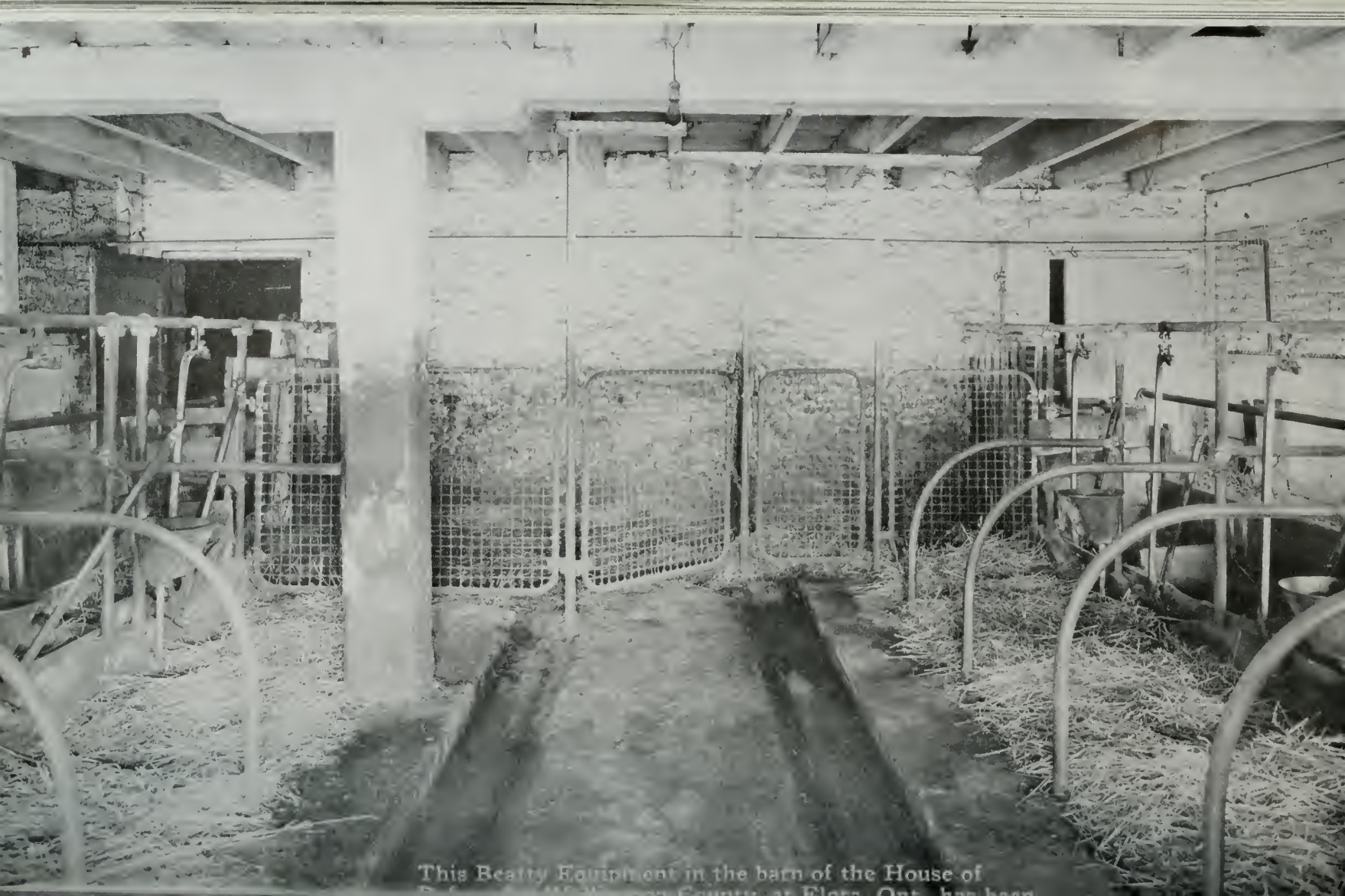
The triple curve gives a very handsome appearance to a row of stalls. They are a great improvement on the single curve from the standpoint of appearance. They also allow the cow to turn her head and walk out of the stall. She does not have to back out so far before turning.

Without partitions it is very hard to keep the cows clean, because the cows edge sideways and are able to dung on the cattle stand.

Steel partitions are much less bulky than the old-fashioned wood divisions, and allow you to get more cows into the same space without crowding.

Beatty Partitions are bent by a special machine, the dies for which we have invented for the purpose and patented. It bends every stall alike, as you will see by the illustrations in this book. The old method was to bend the partitions by hand. It is impossible to bend triple curve partitions by hand and make a neat job of it. No two partitions come through alike, and the tubing is flattened at the bends. The single curve partitions went out of date years ago.

Note that the partition is secured to the stall post by the Beatty Bolted-Through Clamp, as described on page 123. The height of the partitions can be regulated to suit the breed of cows, by setting the partitions farther in the concrete for the smaller breeds. The partitions form a solid brace for the posts which carry the headrail. The Beatty Partition is hot galvanized, inside and outside.



This Beatty Equipment in the barn of the House of

Heavy Materials in Beatty Stalls

The square headrail used in Beatty Stalls measures 1½ inches over all. The tubing is all 1⅝-inch outside diameter, heavy grade, standard steel pipe, .141 inches in thickness. This is about the same as No. 9 fence wire (No. 9 gauge is .148 on Stubbs' Gauge). The tubing is of the best material procurable for resisting rust, and will last twice as long as hard steel tubing with braised joints.

This material is used without variation on Beatty Stalls, from one year's end to the other. When you buy Beatty Stalls, this is the material you get. It is not a case of using one grade of material on one lot of goods and a much lighter grade on another. Beatty Stalls and Stable Equipment are heavier. Not only does the purchaser of Beatty Equipment get the many advantages of Beatty design and careful manufacture, but he will find, on making a comparison with goods of other makes, that Beatty Equipment actually costs *less per pound*.

In every case definite and detailed specifications are given for the materials used in all Beatty Equipment, so that you may know exactly what you are getting. See, for instance, the specifications for the Beatty Standard Stall, Style R, which are given on page 131.

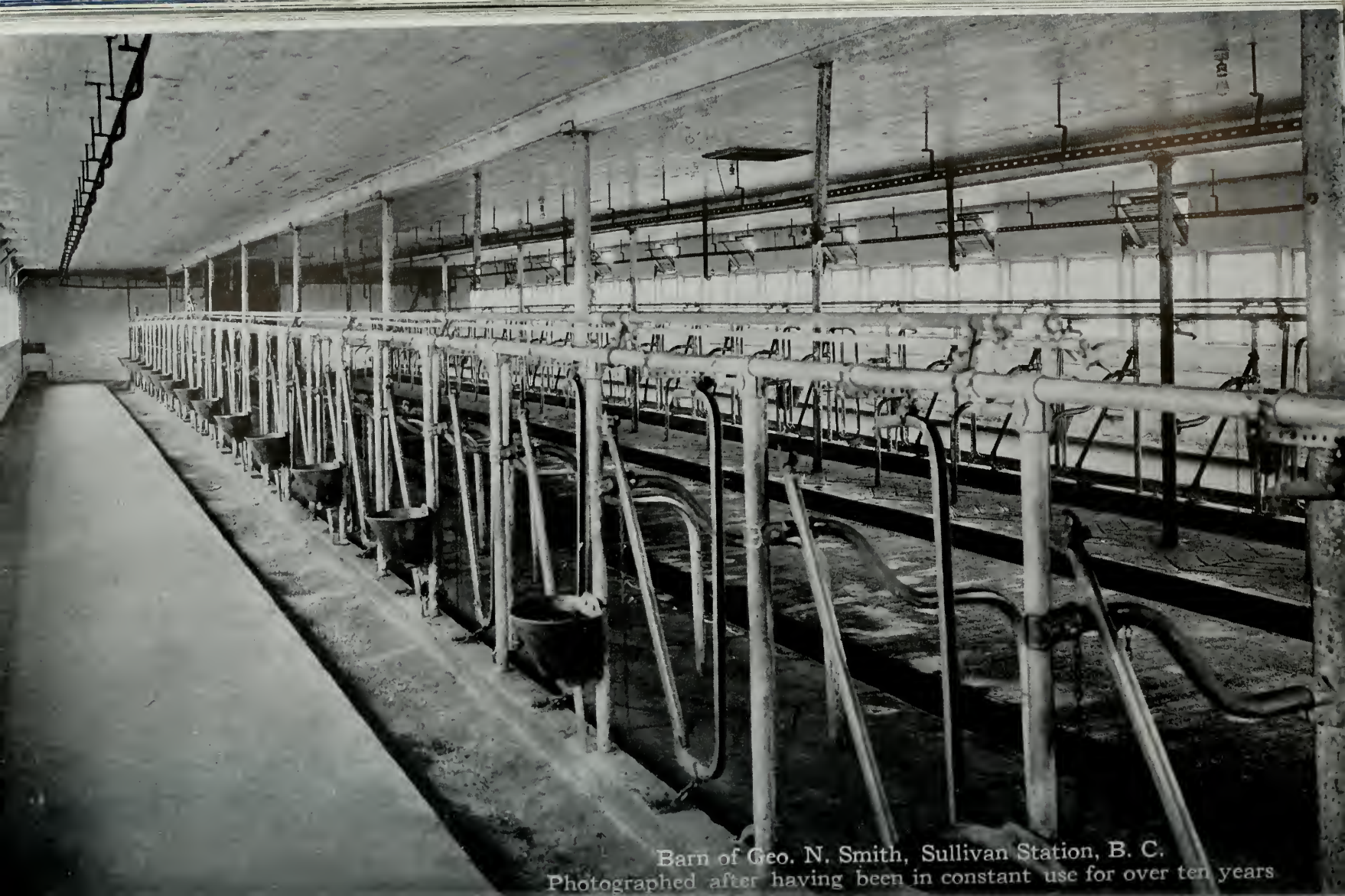
Beatty Stalls are Galvanized

To-day every farmer knows the advantages of galvanizing and demands that his Steel Stable Equipment shall be protected the same as his fencing or eavetroughs. We take a great deal of pride in the fact that we were the first manufacturers to supply a galvanized stall as standard equipment. This soon forced other manufacturers to do likewise, so that the stable equipment being supplied to-day is greatly superior in appearance and durability to what it was before this improvement was made.

Beatty Steel Stalls (including post, partition, headrail and clamps) Beatty Steel Pens, Alley Gates, Steel Supporting Columns and Steel Horse Stall Posts are all galvanized. Galvanizing protects the steel against the moisture in the stable, which is bound to attack the steel in a short time if the equipment is only painted. When this happens, scales of rust form and then drop off, carrying the paint with them. Where the equipment is exposed to the corrosive action of the acids in the manure, we do not trust to galvanizing, but protect the partition at that point with a brass sleeve as described on page 125. This gives the partition at this point a triple defence—the thick layer of zinc, the coating of pitch, and then the heavy sheet of brass.

Hot Galvanized, Inside and Out

Beatty Equipment is galvanized by the Hot Process, by which the steel is immersed in huge vats of heated and molten zinc. All hollow pieces, such as tubing, are thoroughly galvanized, inside and out. No better protection for steel has yet been devised. This work is all done in our Galvanizing Plant.



Barn of Geo. N. Smith, Sullivan Station, B. C.
Photographed after having been in constant use for over ten years

Cleaning Process

The process to which the material in Beatty Stalls is subjected before it is galvanized, contributes almost as much to the rust-resisting qualities of the metal as the actual galvanizing process.

The grease is first removed by soaking the tubing in a strong caustic solution. Then it is carried to an acid bath where it is revolved until all the scale is removed. Finally, the tubing is thoroughly scrubbed by hand. It is not until this thorough preliminary cleansing process is complete that the Beatty Stalls are put in the galvanizing vat.

Small parts, such as clamps, are cleaned by being placed in a rotating drum, which shakes and rubs all the parts together so that any rust or scale is entirely removed. Then they, too, are placed in the vat of molten zinc and given a thorough rust-resisting coat.

As already mentioned, this work is all done in our own Factory where we have a very large Galvanizing Plant, 48 x 124 feet, fully equipped with the most modern equipment.

Make sure that the Stable Equipment you buy is galvanized—not only the tubing but the clamps as well. The clamps sent out on some makes of stalls are not galvanized but only painted.

Beatty Stalls Make Attractive Installation

When the care given to the finish of Beatty Stalls is understood, it is readily appreciated that they make an attractive stable job. With ordinary care they retain their fine appearance.

Many of the first stalls sold by us are still in use and giving as good satisfaction as when new. We have in our files many photos of Beatty Equipment that are still in use after fifteen, twenty, or even more years, and are still giving perfect satisfaction. We have space for only three of these photos, which will be found on pages 102, 126 and 128. The first steel stalls turned out of our factory were sold to the House of Refuge, Wellington County, near Elora, Ont., twenty-three years ago, and are still as serviceable as when new. A photo of these stalls is shown on page 126.

Now that some years have passed since the first steel stalls were made it is possible to make strong statements regarding their lasting qualities. They have stood up to the work on hundreds of farms, and under many conditions. It is easy for any prospective purchaser to find out just what they will do, and it is also easy for him to find out which make will last the longest. Compare a Beatty job with any other in the neighborhood, and the difference is apparent. You will buy Beatty because it lasts longest.

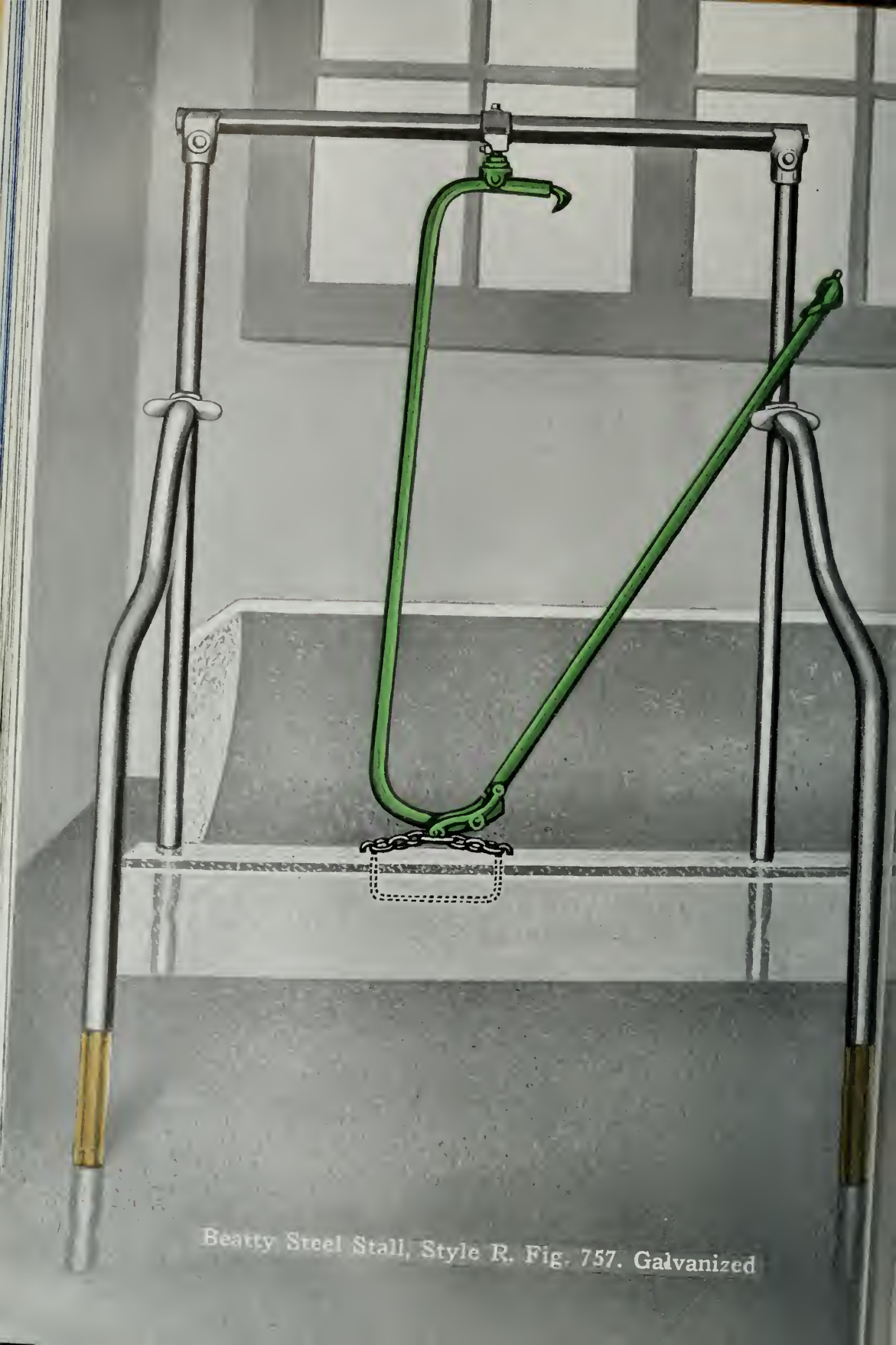
Out of the many letters in support of our statements regarding the lasting qualities of Beatty Equipment which we have in our files, we take just the one that follows. It is from Dr. S. F. Tolmie, M.P., Victoria, B.C., who installed our equipment in his barn well over twenty years ago:—

House of Commons,
Canada,
Aug 1, 1923

Beatty Bros. Limited,
Fergus, Ont.
Dear Sirs:

I have used your stalls and stanchions on my farm at Victoria for nearly twenty years. They have given most excellent service and if building a new barn, would not hesitate to install fittings.

Yours faithfully,
S. F. Tolmie



Beatty Steel Stall, Style R. Fig. 757. Galvanized

SPECIFICATIONS

Beatty Complete Stall—Style R—Fig. 757

(Supko)

Headrail—1½-inch square steel tubing, solid welded.

Post—1⅝-inch outside diameter solid welded steel tubing.

Partition—1⅝-inch outside diameter solid welded steel tubing, bent to form a triple curve, as described on page 125.

Brass Sleeve—9-inch long. Thickness, .020-inch. 1 inch goes in concrete, 8 inches protect the partition against rust and corrosion above the floor line.

Anchors—Post and partition are expanded where they go in the concrete, to anchor them securely.

Clamps—Post and partition are furnished complete with the Beatty Bolted-Through Stall Clamp. This is made of malleable iron. (See page 122.) It is dust proof. Square end plug is furnished to close up end of headrail at ends of each row.

Stanchion—Beatty Steel Stanchion, Fig. 607, (page 116), made of high carbon U-bar steel, 1¼-inch x 1⅛-inch x ⅝-inch. Lock is cow proof but can be opened with thumb. Malleable lock casting is riveted in place with a ⅝-inch rivet. Hinge is malleable, heavily ribbed and is riveted to stanchion with three ⅜-inch rivets. Stanchion has malleable swivel connections at top and bottom which enable it to turn completely around.

Weight of stanchion, 18 lbs.; 3 feet 11 inches long inside; neck space, 7½ inches.

Stanchion Rest—The stanchion rest forms part of the clamp which attaches the partition to the stall post. This clamp is put in place at the Factory. Stanchion Rest holds the stanchion when open.

Aligning Device—Every Beatty Style R Cow Stall is supplied complete with Beatty Rapid Shift Aligning Device, as described on page 119. Aligning Device is strongly made of malleable iron. It is immovable on the headrail. Permits an adjustment of the stanchion of 8 inches, or if the aligning device is reversed, 11 inches.

Finish—All tubing, clamps, bolts and other parts, (except the stanchions,) are galvanized by the "Hot Process", inside and out.

Weight—About 55 lbs. per stall.

Finished Ends—To complete a row of stalls, Finished Ends are furnished at extra charge. See page 145.

Stalls are shipped knocked down for convenience in handling. All clamps are put in their proper places before the equipment leaves our Factory.

Beauty Steel Stall, Style S. Fig. 758. Galvanized

SPECIFICATIONS

Beatty Complete Stall—Style S—Fig. 758

(Sipra)

Headrail—1½-inch square steel tubing, solid welded.

Post—1⅝-inch outside diameter, solid welded steel tubing

Partition—1⅝-inch outside diameter, solid welded steel tubing, bent to form a triple curve, as described on page 125.

Brass Sleeve—9 inches long. Thickness .020 inch. 1 inch goes in the concrete, 8 inches protect the partition against rust and corrosion above the floor line.

Anchors—Post and partition are expanded where they go in the concrete, to anchor them securely

Clamps—Post and partition are furnished complete with the Beatty Bolted-Through Stall Clamp. This is made of malleable iron. (See page 122.) It is dust proof Square end plug is furnished to close up the end of the headrail at the ends of each row.

Stanchion—Beatty Steel Stanchion, Fig. 607, (page 116), made of high carbon U-bar steel, 1¼-inch x 1⅞-inch x ⅝-inch. Lock is cow-proof but can be opened with the thumb. Malleable lock casting is riveted in place with ⅝-inch rivet. Hinge is malleable, heavily ribbed, and is riveted to the stanchion with three ⅜-inch rivets Stanchion has malleable swivel connections at top and bottom which enable it to turn completely around.

Weight of stanchion, 18 lbs.; 3 feet 11 inches long inside; neck space, 7½ inches

Stanchion Rest—The stanchion rest forms part of the clamp that attaches the partition to the stall post. This clamp is put in place at the Factory Stanchion Rest holds the stanchion when open.

Aligning Device—Every Beatty Style S Stall is supplied complete with the Beatty Rapid Shift Aligning Device, as described on page 119. Aligning Device is strongly made of malleable iron and is immovable on the headrail. It permits an adjustment of 8 inches, or, if reversed, 11 inches.

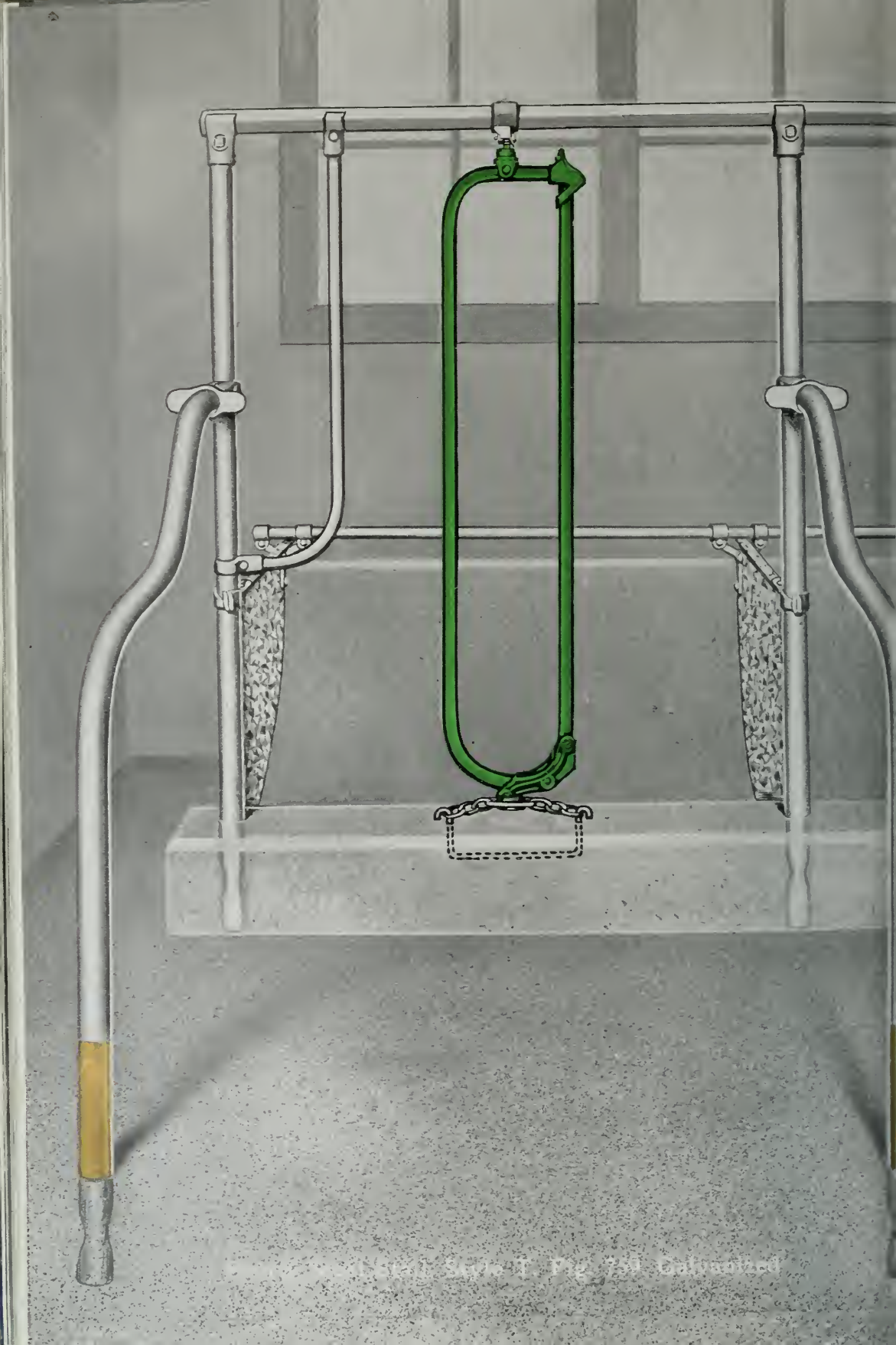
Sure Stop Post—Prevents the cow from putting her head in at the wrong side of the stanchion, but does not prevent her from turning her head freely to that side when lying down. It is made of 1⅞-inch outside diameter, solid welded steel tubing

Finish—All tubing, clamps, bolts and other parts, (except the stanchions,) are galvanized by the "Hot Process", inside and out

Weight—About 60 lbs per stall

Finished Ends—To complete a row of stalls Finished Ends are furnished at extra charge See page 145

Stalls are shipped knocked down for convenience in handling All clamps are put in their proper places before the equipment leaves the Factory



SPECIFICATIONS

Beatty Complete Stall—Style T—Fig. 759

(Sanzo)

Headrail—1½-inch square steel tubing, solid welded.

Post—1⅝-inch outside diameter, solid welded steel tubing.

Partition—1⅝-inch outside diameter, solid welded steel tubing, bent to form a triple curve, as described on page 125.

Brass Sleeve—9 inches long. Thickness .020 inch. 1 inch goes in the concrete, 8 inches protect the partition against rust and corrosion above the floor line.

Anchors—Post and partition are expanded where they go in the concrete, to anchor them securely.

Clamps—Post and partition are furnished complete with the Beatty Bolted-Through Stall Clamp. This is made of malleable iron. (See page 122.) It is dust proof. Square end plug is furnished to close up the end of the headrail at the ends of each row.

Stanchion—Beatty Steel Stanchion. Fig. 607, (page 116), made of high carbon U-bar steel, 1¼-inch x 1⅞-inch x ⅝-inch. Lock is cow-proof but can be opened with the thumb. Malleable lock casting is riveted in place with ⅞-inch rivet. Hinge is malleable, heavily ribbed, and is riveted to the stanchion with three ⅜-inch rivets. Stanchion has malleable swivel connections at top and bottom which enable it to turn completely around. It has two long malleable links to attach the bottom swivel to the pins of the anchor which goes in the concrete.

Weight of stanchion, 18 lbs.; 3 feet 11 inches long inside; neck space, 7½ inches.

Stanchion Rest—The stanchion rest forms part of the clamp that attaches the partition to the stall post. This clamp is put in place at the Factory. Stanchion Rest holds the stanchion when open.

Aligning Device—Every Beatty Style T Stall is supplied complete with the Beatty Rapid Shift Aligning Device, as described on page 119. Aligning Device is strongly made of malleable iron and is immovable on the headrail. It permits an adjustment of 8 inches, or, if reversed, 11 inches.

Sure Stop Post—Prevents the cow from putting her head in at the wrong side of the stanchion, but does not prevent her from turning her head freely to that side when lying down. It is made of 1⅝-inch outside diameter, solid welded steel tubing.

High Manger Division—12 gauge galvanized steel, reinforced and connected by 1⅝-inch outside diameter, steel tubing. They are 2 feet 6 inches wide and 1-ft. 10½ ins. deep at the deepest point. They are hinged to the stall posts and adjustable 2 inches to suit variations in the widths of curbs. See full description on pages 138-139.

Finish—All tubing, clamps, bolts and other parts, (except the stanchion,) are galvanized by the "Hot Process", inside and out.

Weight—About 84 lbs. per stall.

Finished Ends—To complete a row of stalls, Finished Ends are furnished at extra charge. See page 145.

Stalls are shipped knocked down for convenience in handling. All clamps are put in their proper places before the equipment leaves the Factory.

ment Mangers and BT Manger Divisions and Water Bowls
Barn of A. H. Fair, Kingston, Ont.

Beatty Individual Manger Divisions

The importance of a properly designed and constructed manger cannot be too strongly emphasized. The manger should be the proper width at the top, namely 2 feet 6 inches in the clear, with a well-rounded bottom, so that the food always falls towards the cow and stays within easy reach. The most satisfactory and commonly-used manger is made with a high concrete front, about 2 feet high, and lifting steel manger divisions.

The Beatty Lifting Manger Divisions enable the farmer to ration the cows so that each cow gets the feed that she needs and can use economically.

Prevent Animal Stealing from Neighbour

In many dairies, feeding has become so important that the feed is weighed out, so that each cow is rationed according to her capacity and milk production. It is of no avail, however, to weigh the feed if the feed is not kept separate and the fast eater can rob her slower neighbour.

The divisions give each cow her allowance of feed, and overcome both over-eating and under-eating, both of which are equally harmful. When fed in this way, fast eaters, who bolt their feed are not developed. Moreover, the farmer knows at all times exactly what each cow is getting, and can adjust rations intelligently.

Divisions Remove a Cause of Big Knees

The high cement manger illustrated throughout this book and the Beatty Manger Divisions are correctly designed to keep every bit of feed within the reach of the cow. The bottom of the manger is so shaped that the feed comes exactly to the right place for the cow to reach it most conveniently, even to the last mouthful. The feed accumulates in the centre of the manger, directly under the nose of the animal. The divisions prevent it being pushed out of the way to right or left and the rail along the top prevents it being tossed out into the feed alley. Thus every piece of feed is correctly used and without waste.

The high cement manger, the rounded manger bottom and the steel divisions do away with any necessity for the cow getting down on her knees to reach her feed. Big knees are the result of poorly designed mangers, with no fronts or divisions, which enable the cow to nose her feed out of reach and away from herself. Mangers should not have flat bottoms. The food gets nosed into corners, which causes the cow to reach for it. As every dairyman knows, a cow should not be allowed to reach for food and that, if she does so, a serious accident is often the result.

Mangers are Self-Cleaning

Beatty Lifting Manger Divisions enable the owner to raise a whole row of divisions at one time, to sweep out the manger. The mangers are raised by means of the Manger Windlass described on page 139. There are no corners left for the accumulation of sour, stale feed. The raise and lower feature is a most important advantage of Beatty Manger Divisions from the standpoint of sanitation. Water can be run down the manger frequently to flush it perfectly. The Lifting Manger Divisions are made for use with Beatty Water Bowls as shown on the opposite page. For complete description of this method of watering see pages 190 to 208.

Barn of A. H. Fair
King[illegible] Ont.

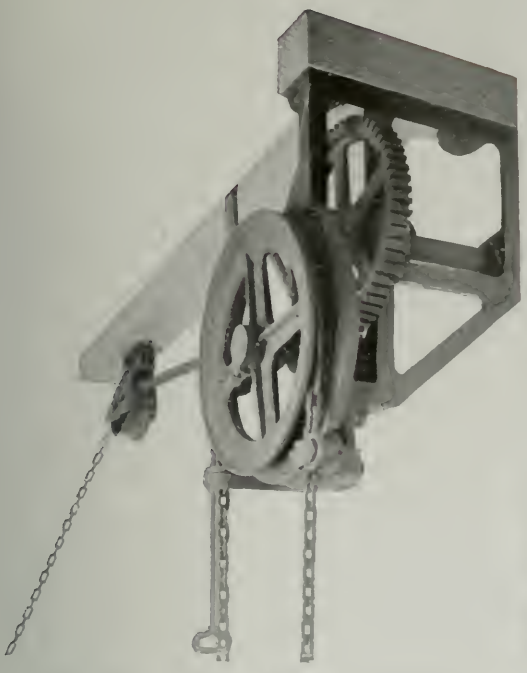


Fig. 442—(Swim) Manger Windlass

This feed rail is recommended when steel manger divisions are not employed. It prevents feed being tossed into passage

Fig. 742—(Sotor) Feed Rail for high cement Manger

Windlass for Raising Beatty Manger Divisions—Fig. 442

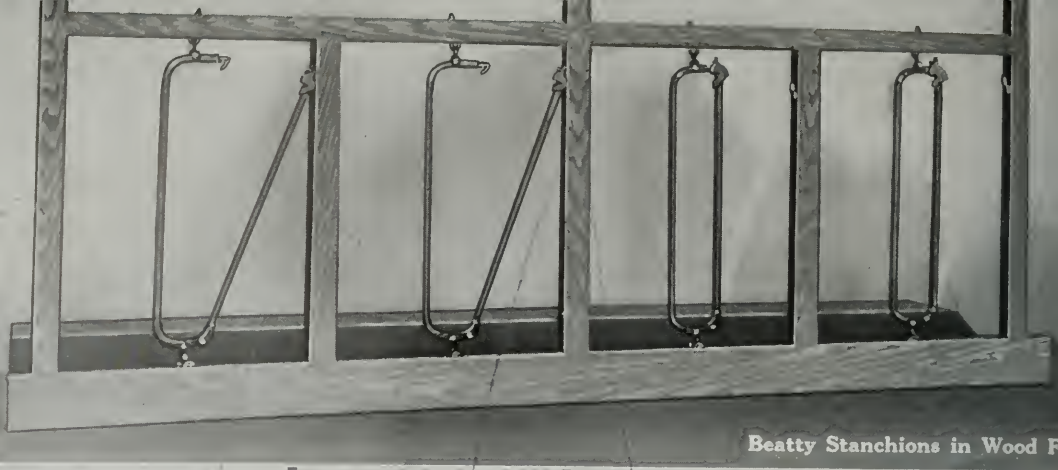
(Swim) (Patented)

The Beatty Raising Windlass will raise a whole row of mangers, easily and quickly. Its greatest advantage is that the whole row, no matter how long, is raised evenly. No part can sag, twist or bend out of shape. The danger when mangers are lifted with springs or weights is that people are continually catching the row of mangers by one corner to raise them, thus twisting and bending them.

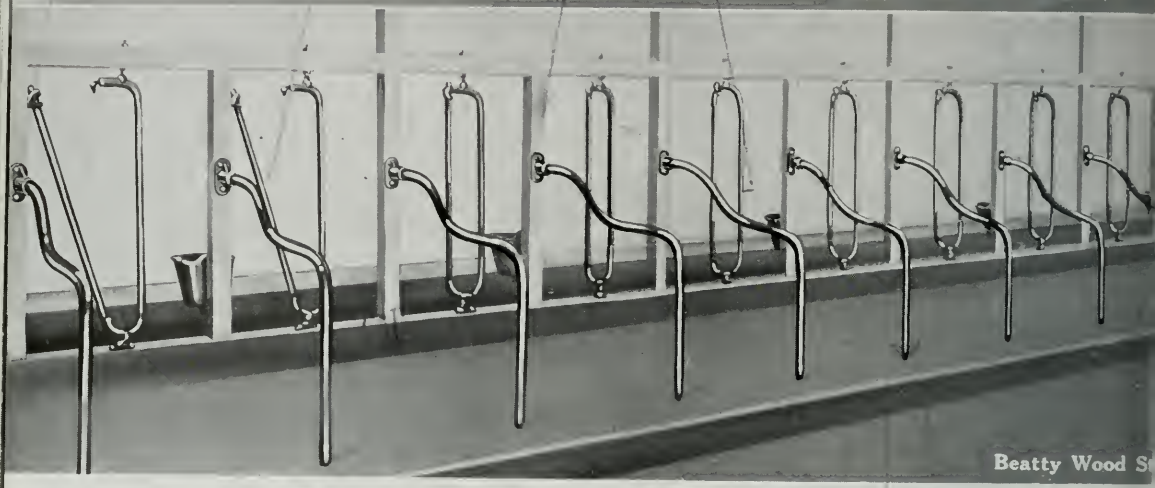
There are no springs to weaken in the Beatty Mangers. When the row of mangers is raised, you can depend on its staying. When springs are used, or counter balance weights, cows are able to toss the manger up and get at their neighbours' feed. They cannot lift Beatty Mangers as the whole row is one solid section.

The windlass is attached as shown in the illustration above. The raising chains are run from it, through pulleys, and from them, down to the mangers. The first chain should be placed one manger from the end and then on every third manger.

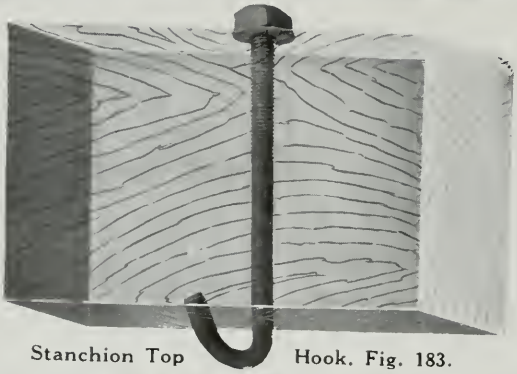
The windlass is controlled by a one-piece, malleable locking brake which is operated by a handle. To lower the row of mangers, just raise this brake and the whole row will gradually drop by its own weight. Twenty mangers can be handled by one windlass. Often the windlass is put in the feed room at the end of the stable.



Beatty Stanchions in Wood Fr

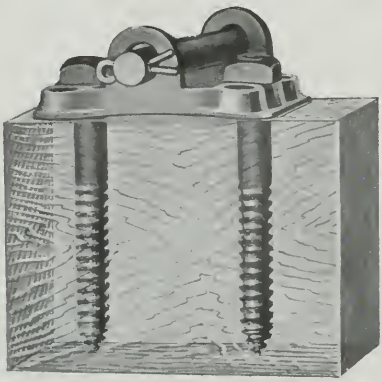


Beatty Wood St



Stanchion Top Hook. Fig. 183.

Stanchic
for Wood.



Beatty Wood Clevis. Fig. 185.

Beatty Fittings for Wood Stalls

While steel stalls and cement floors are immeasurably better because they are sanitary and will last longer—and therefore be more economical in the end,—under some conditions, the farmer wishes to use wood. If so, the frame of the stall may be constructed of wood, and the Beatty Stanchion hung in it. No special skill is required to instal such an outfit and this layout is cheaper than the old wood stall. The dairymen who wish to remodel their stables and use wood stalls will thus have the advantage of the cow-comfort swing stanchion. The Beatty Aligning Device can be used in such stalls, and this, combined with the Beatty Stanchion, will add much to the cleanliness and comfort of the cows. The frame for such stalls is usually made of 4-inch x 4-inch material. Every second upright should run to the ceiling. The curb should be 7 inches or 8 inches high and the distance from the top of the curb to the bottom of the top rail should be 4 feet 6 inches.

Beatty Wood Stalls

The second photo from the top on the opposite page shows wood stalls fitted with Beatty Steel Stanchions and steel partitions. This construction is better than that described above because the Beatty Triple Curve Partitions protect each cow from her neighbour on either side. They also brace the frame and keep it rigid.

The cost of fitting out a stable like this is very small. The frame is made of two 2-inch x 4-inch scantling spiked together. The partitions are bolted to this by means of the wood clamp shown at the bottom of the opposite page. If we are told the size of the upright posts, we will send bolts the proper length to attach to the partitions. If no information is given, we send lag screws. Water Bowls can be used with this stall as shown in the illustration.

SPECIFICATIONS

Beatty Fittings for Wood Stalls—One Beatty Steel Stanchion; one top hook for same; one stanchion anchor if the curbs are cement, if they are wood, one wood clevice; one Beatty Triple Curve Partition, including the Stanchion Rest; made of 1⅝-inch tubing and hot galvanized; two galvanized clamps for attaching partition to wood floor and wood frame.

Stanchion Top Hook—Fig. 183

(Stole)

A half-inch hook bolt, as shown in Fig. 183, opposite page, is used to attach the Beatty Stanchion in a wood frame.

Stanchion Rest for Wood Stalls—Fig. 250

(Slim)

A stanchion rest is supplied, which is attached to the upright wood post and receives the moving leg of the stanchion when it is opened. See illustration, Fig. 250, page 140. A 4½-inch bolt is supplied for securing the stanchion rest in place.

Wood Clevice—Fig. 185

(Slighted)

A wood clevice is used for attaching the stanchion to a wood curb. This is illustrated on page 136. The chain slides on the steel pin of the wood clevice. The remainder of the clevice is made of malleable and is attached to the wood by two 4-inch lag screws. The Wood Clevice is galvanized.

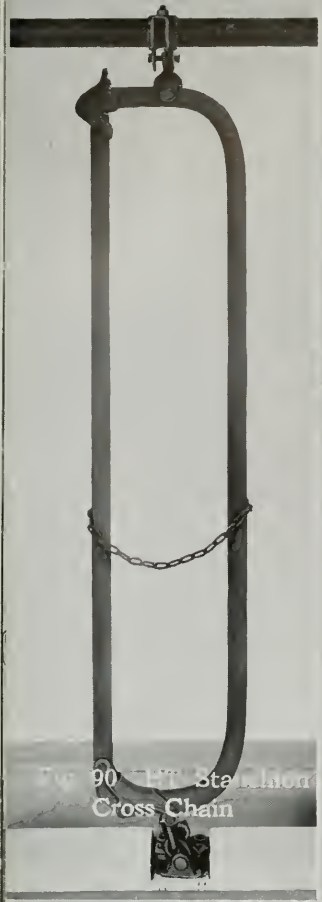


Fig. 90 HT Stallion Cross Chain

Fig. 448 BT Stall Cross Chain

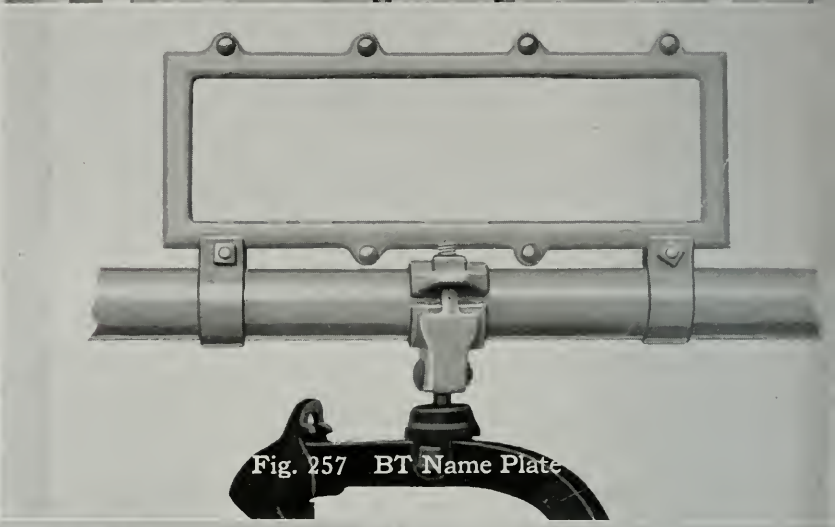


Fig. 257 BT Name Plate

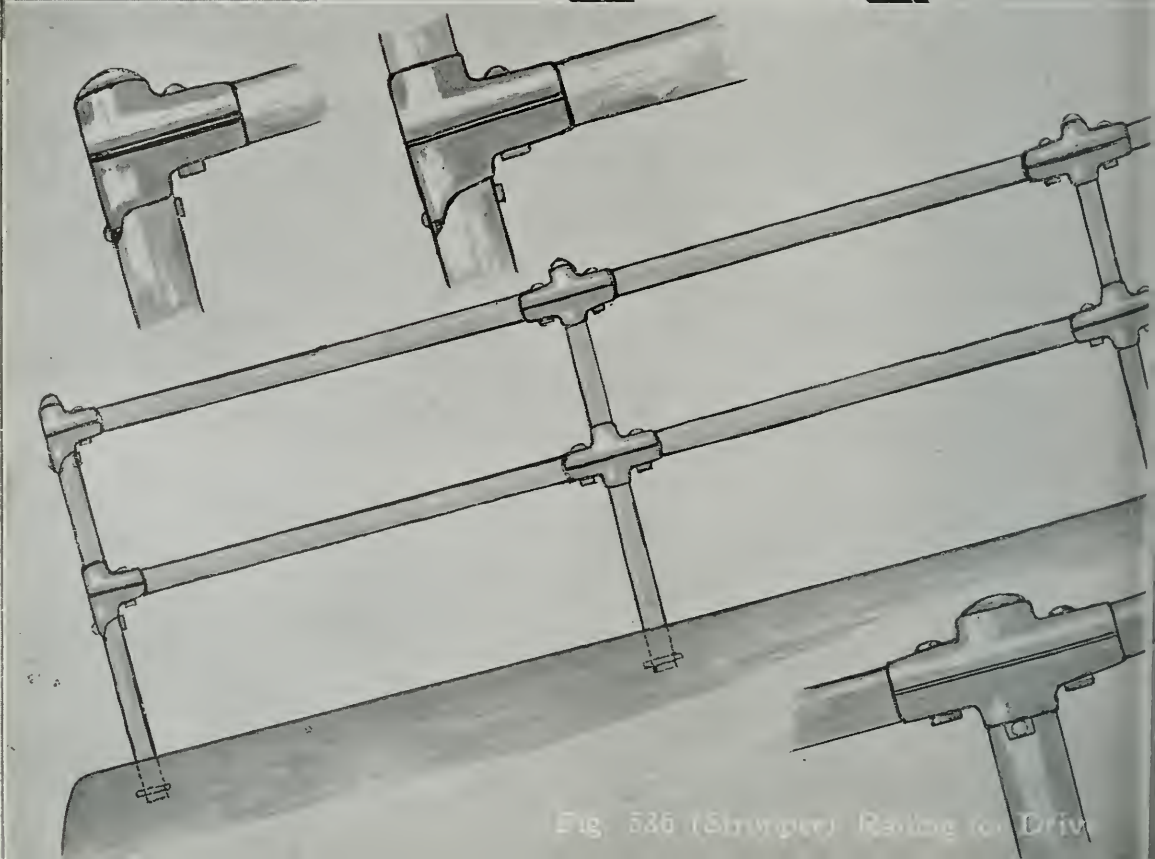


Fig. 526 (Shropshire) Railing for Drive

Wood Floor or Post Clamp—Fig. 187
(Staden)

When stall partitions are supplied for wood floors or posts, as shown in the illustration on page 140, special clamps are required to secure them to the post and to the floor. These clamps are made of malleable iron and are galvanized. The lag screws are sent with them.

Aligning Device for Wood Stalls
(Solemn)

The Beatty Aligning Device is supplied for Wood Stalls when desired. When a wood headrail is used bolts are sent for attaching the Aligning Device to same. Do not forget that with aligning devices you can keep the cows clean.

Beatty Name Plate—Fig. 257
(Strap)

For the farmer who takes a pride in his individual cows, their pedigrees or their records, the Beatty Name Plate on the Beatty Stall furnishes a convenient place in which to display such data. This name plate consists of a frame, composed of two pieces, bolted together to receive and hold a record card. The card, with the name of the cow, the instructions for feeding or the cow's record, is placed between mica or celluloid sheets. The name plate is easily attached to either steel stalls, or to cow and bull pens. It is not galvanized.

Beatty Stall Cross Chain—Fig. 448
(Suffer)

The Beatty Cross Chains for stalls are attached to the stanchion rest and are easily hooked across the stall to keep the cow from lying down after her udder has been washed off for milking. Several of the illustrations in this book show them in use. See photo of Geo. N. Smith's barn on page 128. Stall Cross Chains are hot galvanized.

Beatty Stanchion Cross Chain—Fig. 90

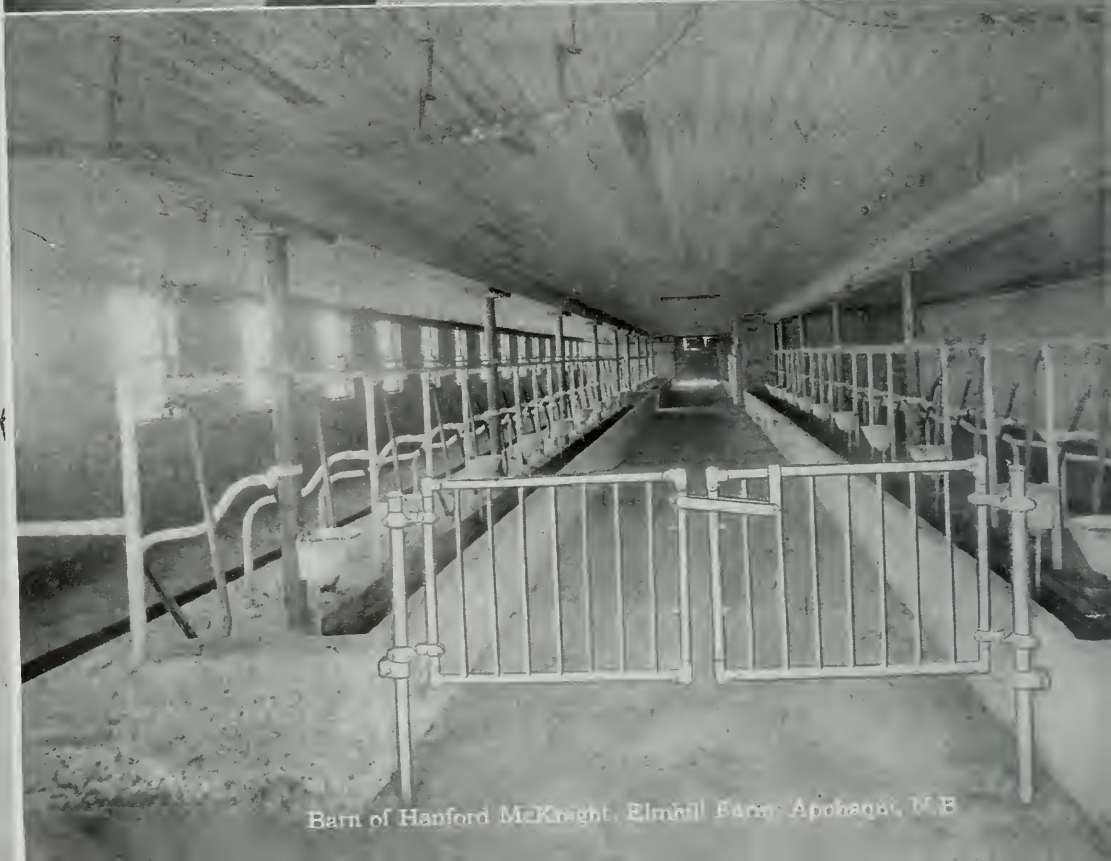
The Beatty Stanchion Cross Chains go on the stanchion and serve the same purpose as the stall cross chains. When not in use, they are held by a spring in the groove of the U-bar. The spring ordinarily lies in the groove of the U-bar.

Railing for Drive—Fig. 536
(Sonat)

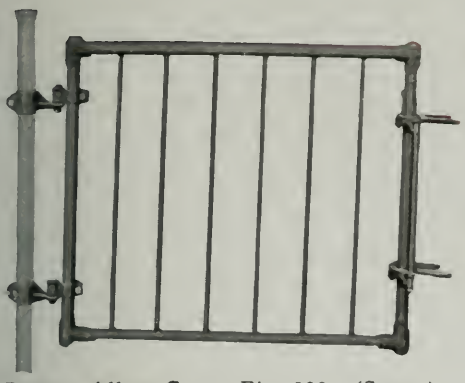
Steel railing for the driveway adds to the appearance of the barn. It makes a useful and ornamental fence for lawns, approaches to bridges, etc.

Upright posts are 2½-inch outside diameter galvanized tubing, placed on 8-ft. centres. Posts are 3 feet long, made to be embedded 6 inch in the concrete and anchored with ½-inch steel pins. Top railing is intended to be 2-ft. 6-ins. above the concrete and lower railing 15 inches below the top rail, centre to centre. Horizontal rails are made of 1¼-in. solid welded steel tubing, hot galvanized. Clamps are malleable iron and hot galvanized. Top clamp carries a neat cap

Remodelled Barn of Edward Johnston, Guelph, Ont.



Barn of Hanford McKnight, Elmhill Farm, Aphaqui, N.B.



Beatty Alley Gate—Fig. 303—(Spurn)

Beatty Finished End—Fig 753—(Sodda)

The Beatty Finished End—Fig. 753

(Sodda)

When there is a passage at the end of a row of stalls, we furnish what we call a Finished End, instead of the ordinary triple curve partition. If desired, a gate can be used in connection with these finished ends so that the space can be closed to prevent the animal from getting into the passage. This is particularly handy when there are calves running with the cows.

The Beatty Finished End is made of 1⅝-inch solid welded steel tubing and is hot galvanized, inside and out. It weighs 25 lbs.

The back of the finished end is 4 feet from the front of the stall post. It is usually attached to the stall post at a height 3 feet 4 inches from the level of the cattle stand.

The finished end can be ordered any length desired to fill a given space between rows with Alley Gate, as shown on the opposite page.

The Beatty Alley Gate—Fig. 303

(Spurn)

The Beatty Alley Gate is made to close off a passage way anywhere. It can be used with the Finished End, described above, or with the ordinary stall posts. The gate, complete with hinges and lock is shown above. It will lock on any stall post or finished end, and will lock from either side.

No casting is required on the post or finished end for the gate locks to fit into, so there is nothing to get out of adjustment. The gate will always lock.

The frame is 1 5/8-inch outside diameter, full weight, solid welded steel tubing, hot galvanized, inside and out. It is furnished with a 1-inch x ¾-inch brace on widths over three feet. Upright rods are made of ½-inch steel, set on 4½-inch centres. Neat corner clamps are used on all corners and are riveted solidly in place.

Standard height of gate is 2 ft. 6 in. It can be made on order any width desired up to 5 feet. Three-foot and four-foot gates are most commonly used, the difference in space being made up by extending the finished ends of the posts that the gate hinge and lock on.

Pen

Feeding the Calves
Barn of Walker Sons, Limited, Walkerville, Ont.

Bright, Sunny Pens for Calves

Give your calves a good start and you will have strong, healthy cattle. Profit-making milkers and stockers are both born and made. They are as much the product of a sanitary, well-lighted, well-ventilated stable as of good breeding. Proper care of the calves and sanitary surroundings, as well as suitable feed, lay the foundation for the performance at the milk pail in the years that follow.

Tuberculosis, scours, ringworm and other diseases abound in dark, dirty stables. These diseases sap the vitality of the calf and prevent her from developing into a healthy, high-producing cow. Wood pens are often dark, damp and dirty. They obstruct the sunlight and ventilation, absorb liquid manure, crack and rot, thus affording suitable breeding ground for disease germs of all kinds.

The diseases mentioned above are specially prevalent in Winter. Many calves come through the Winter in such bad condition that it takes most of the Summer to make up for lost time. Many cows do not give a good account of themselves in their first lactation period, because of poor condition carried forward from when they were calves.

Bright Quarters Make Healthy Calves

Healthy, vigorous calves can only be raised in bright, sunny, dry and well-ventilated quarters. Calves thrive in Beatty Steel Pens because the open construction of the steel allows the sunlight to flood every square inch of the stable. Sunlight destroys disease germs and dries up the floors. It is the best disinfectant in the World. The open construction of the steel also permits free circulation of air through the pens, thus ventilating them thoroughly.

Beatty Pens Save Time and Work in Feeding

Beatty Calf Pens are built to save time and work in feeding. A stanchion is provided for each calf, in which each can be tied separately; or, if preferred, the whole row can be opened or closed at the same time. The whole row can be very quickly tied and milk pails placed in front of them, as shown by the illustration on the opposite page. Time is saved because the whole row is fed at one time. Yet, at the same time, each calf has its own compartment and you don't have to hammer with a stick to keep one calf out of the other's pail. Each calf is given the ration it requires. It can be left in the stanchion until it has finished, without being molested and without wasting a drop.

Beatty Calf Stanchions are a great help in overcoming the injurious sucking habit. Each calf can be left tied in the stanchion until its mouth dries off. The stanchions are also very handy for keeping the calves out of the way when you want to clean the pens.

Steel pens are durable, fireproof and easily kept clean. They always look well. Steel Pens are in harmony with steel cow stalls and add greatly to the appearance of the stable. The photos in this book show how bright, clean and attractive is the stable when fitted with steel pens and how well the calves look in them.

Every Beatty Calf Pen is high enough, strong enough and has the equipment to accommodate a cow. It can therefore, be used as a hospital or maternity pen.

World's Champion Cow of Donat Raymond making her record in a BT Pen, Vaudreuil, Que.

Clean, Comfortable Pens for Cows

During calving time and whenever there are sick cows in the stable, nothing in the way of equipment is so greatly appreciated by the cows, and their owners, as the Beatty Sanitary Steel Combination Cow and Calf Pen.

Never should the dairy cow be handled more gently or with more consideration than when with calf—this being a period of greatest importance to the future well-being of the animal and her young.

A cow should not be permitted to calve, confined in a stanchion or tied up, if there is room in the stable for a proper pen. Suitable maternity quarters are an absolute essential, even when considered only from the standpoint of profits.

A cow should be kept in a clean, dry roomy pen for several days before the calf is due, in order that she may accustom herself to her new surroundings and get exercise. The isolation and freedom are a great help toward the mother doing well, for in most cases nature will do all that is necessary, if the cow has warm, dry, comfortable quarters.

The Beatty Combination Cow and Calf Pen is a great convenience, making it possible for the attendant to watch the cow while she is calving, without the necessity of disturbing or exciting her. After the calf has been taken away, the isolated quarters and comfortable surroundings aid in keeping the cow quiet and calm so that her milk will sooner be established on a full and even basis.

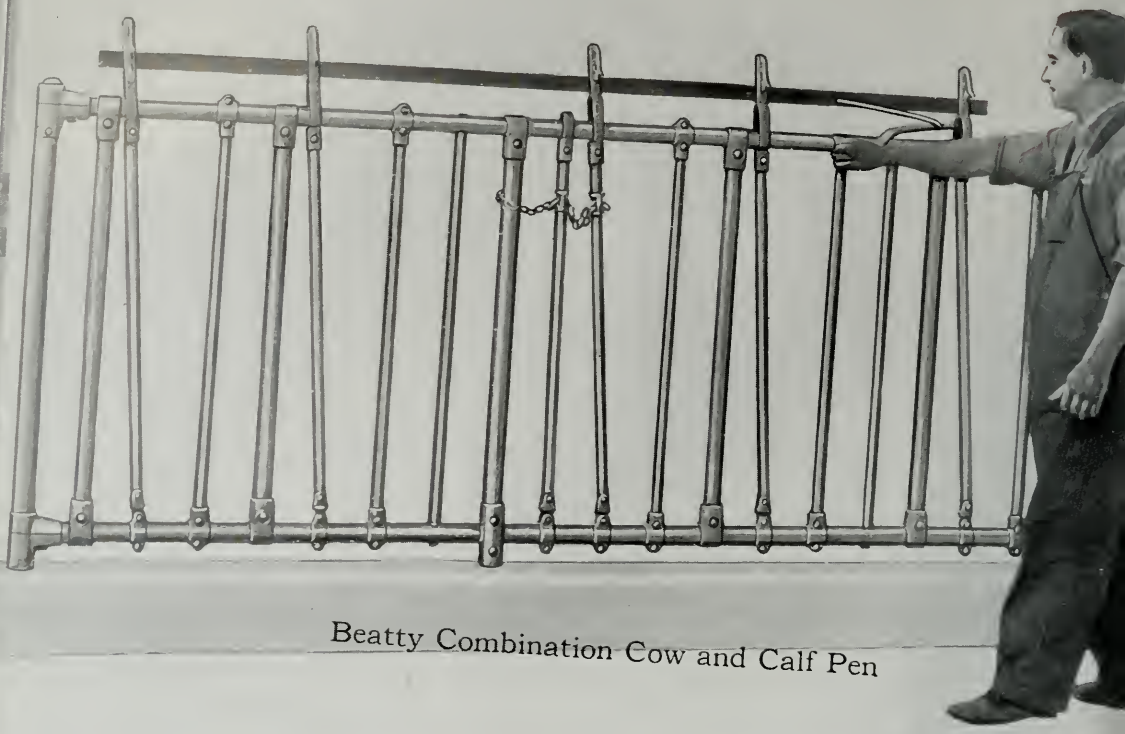
As one writer puts the case:—"The question of caring for a sick cow brings out, perhaps more effectively than in any other way, how united are sentiment and profit in dairying".

That a tender, sensitive animal, with her unborn offspring, should be gently handled and protected from hardship, receives the assent of every humane person. But when this animal is at the same time daily producing an article convertible into dollars and cents, and the amount of this article is increased by kindness and decreased by brutality, it is then that sentiment and profit should unite and say,—"'Be kind to the cow".

Realizing this relation between the health of the cow and her profit to the owner, it seems reasonable to assert that no dairy barn is complete without some sanitary steel pen for isolating the cow. As soon as she shows signs of any disorder, or comes under suspicion in any way, it is necessary to separate her from the herd. The isolation quarters should insure to a sick animal abundant supply of light, air, heat, comfort, with a freedom from noise and disturbance, and should be capable of thorough disinfection after use.

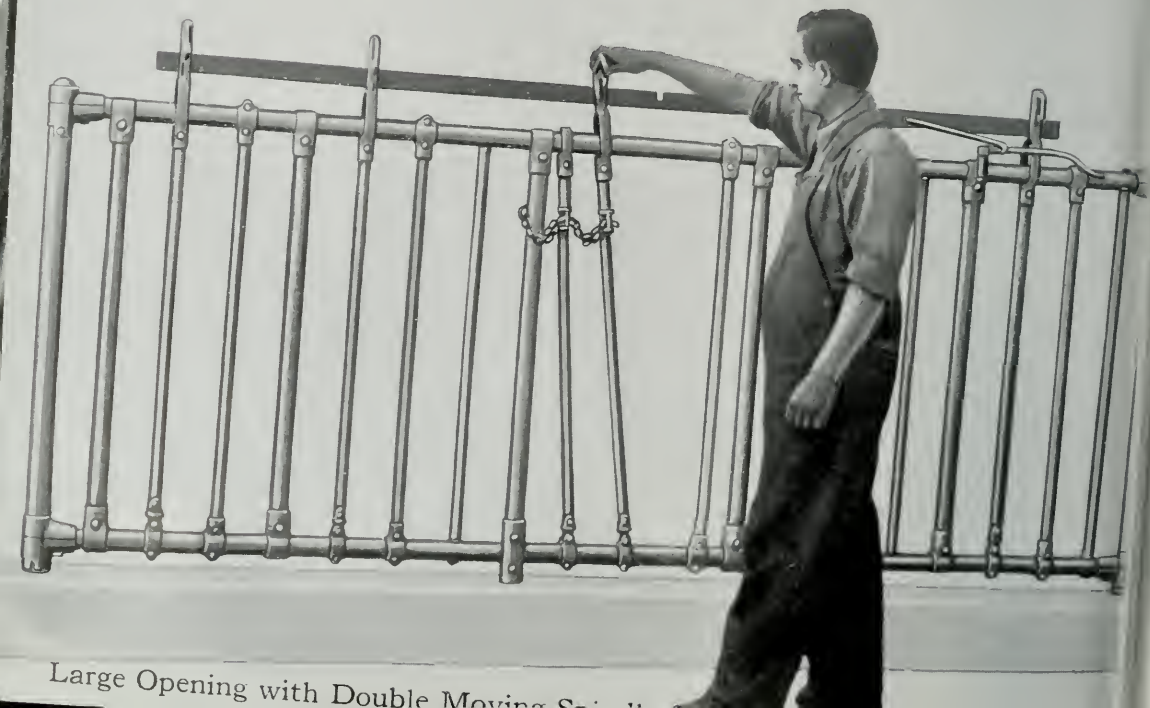
Not only does the Beatty Combination Cow and Calf Pen meet every requirement in providing the maximum of ventilation, light and dryness, but it affords every facility for keeping the pen clean and may be thoroughly disinfected at any time. It has the least possible surface to catch dust. There is nothing better than Beatty Steel Equipment to help you check contagious abortion and tuberculosis and prevent them from spreading through the herd.

Opening Row of Stanchions for Calves and Young Stock

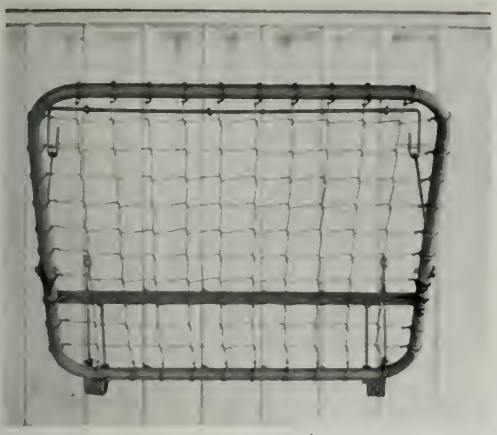


Beatty Combination Cow and Calf Pen

Opening One Stanchion for Cow



Large Opening with Double Moving Spindle



Beatty Spring Hay Rack—Fig. 264—(Scout) Used in Cattle Pens and Horse Stalls. Springs force Rack against hay. Closes flat when not in use.

Fig. 732
(Scand) Pail Holder for Calf Pens

Beatty Combination Cow and Calf Pens

The Beatty Combination Cow and Calf Pen is designed to accommodate, with equal efficiency, calves, young stock or cows. For this reason it meets the needs of the farmer or dairyman better than having separately constructed pens for each of these three classes of stock.

There will be times of the year when the pens will mostly be required for cows, whereas, at other times of the year they will be needed for calves and young stock. It is evident, therefore, that the pens should be made to accommodate all classes of stock other than bulls or steers. Furthermore, Beatty Combination Pens cut down the number of pens required, with a reduction, in consequence, of both expense and space occupied.

Beatty Combination Pens are made with stanchion fronts having adjustable neck spindles, so that they will tie a whole row of calves or young stock. In each front, one of the stanchions is made with a double moving spindle. When opened separately this opens widely enough to accommodate the full grown and matured head. The adjustable neck spindles provide a quick way of changing the front to tie the different animals as they vary in size.

This pen may be used for vealing calves, for raising baby beef, as a maternity pen or as a hospital pen for the sick cow. The front is high enough for a full-grown cow to be tied in for milking. All corner posts and gate posts in Beatty Pens are very heavy. (See complete specifications on page 155.) The clamps that attach the pen siding to the corner posts are fastened by bolts that go through both clamp and tubing and do not depend on friction. It is the corners that must carry the strain and at these points Beatty Pens are exceptionally strong. The spindles in the stanchion front are made of the same material as the spindles in the Beatty Bull Pen. The panels of the Beatty Combination Pen are bolted together every 2-ft. with heavy ½-inch bolts that run right through the spindle from top rail to bottom rail. The pen fronts, siding and gates are assembled at the factory into panels, which are ready for erection when shipped.

The clamps are made of malleable iron. They are strong, neat in appearance and dust-proof. The inserted spindles in the pen siding make Beatty pens more sanitary and easier to keep clean. Beatty Pen Gates have bolted-through hinges that cannot turn; a braced bottom arch, which is sagless and a double gate lock, absolutely safe. See detailed description on pages 102-3. A detailed specification of the Beatty Combination Pen is given on pages 154-5. Study this specification carefully. Many years of experience have taught us that pens must be heavy and strongly made. In conclusion, may we point out once more that Beatty Pens are bolted solidly together. We do not depend on friction-grip clamps.

Fig. 732—Pail Holder for Beatty Calf Pens

This attaches to the side of the pen to support a pail, the bottom of the pail resting on the curb. The holder is adjustable to suit pails of different sizes, and is hinged so that it will drop out of the way when not in use.

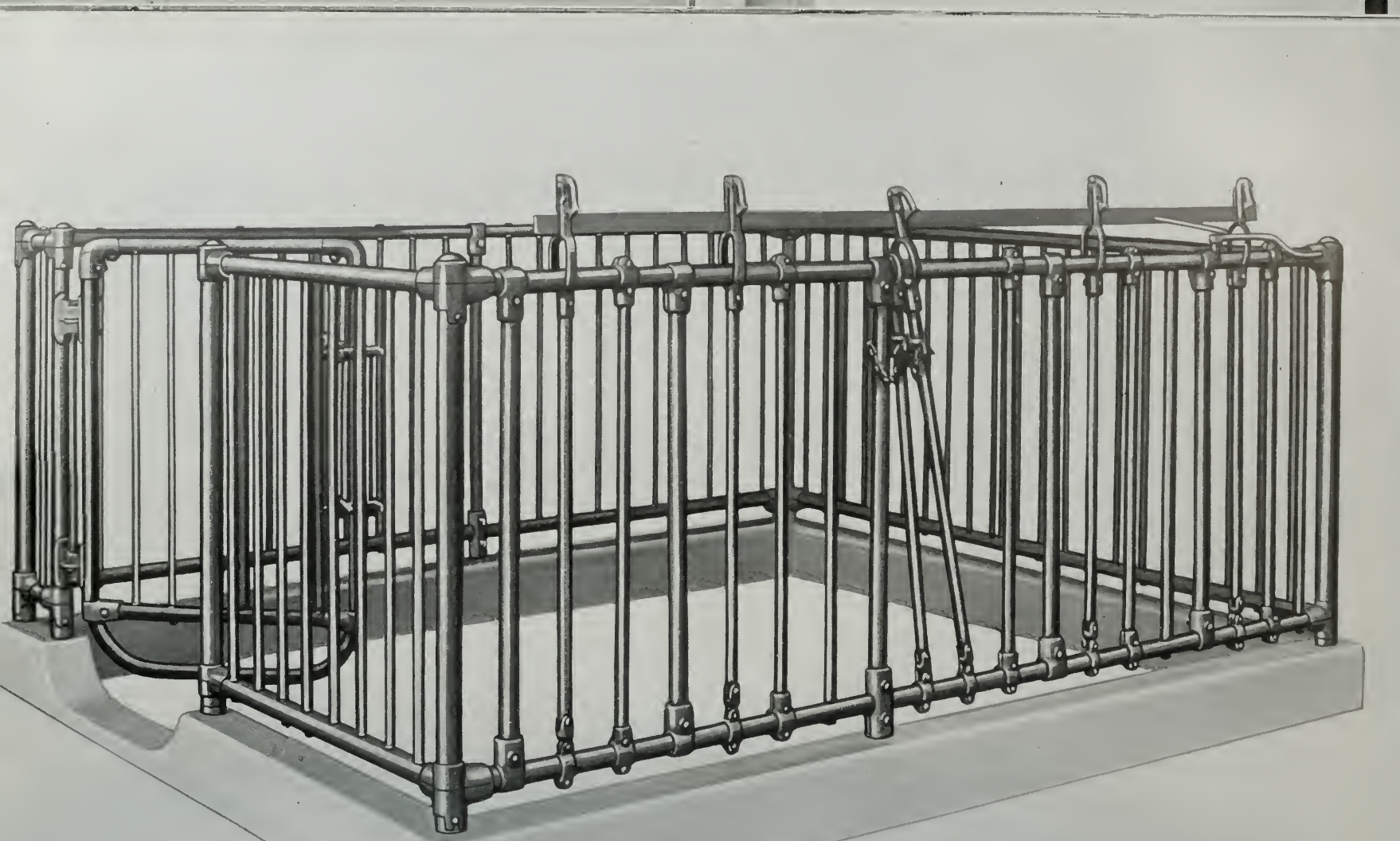


Fig. 746. Beatty Combination Cow and Calf Pen

SPECIFICATIONS

Beatty Combination Cow and Calf Pens—Fig. 746

(Patented)

Corner Posts—2⅜-in. outside diameter, solid welded steel tubing. They are 4-ft. 10-ins. long and extend through the curb and into the floor 2-in. so that the pen stands 4-ft. 8-ins. above the level of the floor. Corner posts are fitted with anchors, riveted in place.

Intermediate Posts—1⅞-in. outside diameter, solid welded steel tubing, made in two sections, one section below the lower horizontal rail, extending through the curb and well below the floor line. Expanded to anchor it securely.

Gate Posts—2⅜-in. solid welded steel tubing, 5-ft. 4-in. long and made to extend 8 inches below the floor line. They are held solidly in the concrete and prevented from springing by two long spindles which are bolted securely into anchor pieces by long, half-inch bolts passing right through, thus doing away with the unsightly gate arch. See illustration of this construction on page 162.

Gate—Gate consists of a single panel with a 1⅞-in. outside diameter, solid welded, heavy, bowed frame, upper corners being joined by neat corner clamps. Gate spindles are 1⅛-in. outside diameter, solid welded steel tubing, set on 5-in. centres. Top of gate is same height as top of panels, namely, 4-ft. 8-ins. Width of gateway from centre to centre of gate posts is 3-ft. 6-in. For illustration of gate lock, see page 162.

Stanchion Fronts—Top of fronts is 4-ft. 8-in. above the floor level top of neck space, therefore, being almost on the same level as the top of neck space in the Beatty Stanchion. Distance from top to bottom rails, centre to centre, is 3-ft. 8-in.—this being the neck space of the stanchions. Horizontals are 1⅞-in. outside diameter, solid welded steel tubing, intermediates 1⅞-in. and spindles 1⅛-in. Spindles comprising the stanchions can be opened singly, or a row at a time and are adjustable to suit the neck space required by the animal. Shift rail is 1¾ x ⅜-in. steel. Width of space allotted to each animal, 24 to 30 inches.

Panels—Panel horizontals, top and bottom, are 1⅞-in. outside diameter, solid welded steel tubing. Panel spindles are 1⅛-in. tubing set on 5-inch centres and secured by plugs inserted in the panels top and bottom and in the spindle. Long, half-inch rods pass through the spindles from top rail to bottom rail at intervals of about two feet, thus bolting the panel solidly together.

Clamps—Beatty heavy, malleable, dust-proof clamps, bolted through.

Sizes—Made to order to suit the stable. See measurements recommended for box stalls on page 69. When ordering, make a sketch indicating the number of sides we are to furnish, number of stanchions desired in the front, which of the sides, if any, are to be formed by the walls of the stables and the materials in the wall, whether wood, cement or stone.

Cement Work—Curbs should be made 8 inches high and 6 inches wide. From curb to lower rail of all panels is 2 inches. The same high cement manger as that recommended throughout this book should be used with the pens. See page 74. For cement work around gates, see page 162.

Finish—Hot galvanized, inside and out.

Beatty Combination Pens are shipped in panels so that they can be set up in a very short time.

Fronts for Beatty Combination Pens are carried in stock at our Branches in lengths of 10 feet for five calves and 12 feet for 6 calves.

Barn of Dominion Experimental Farm
Cap Rouge, Que.

You can tie the Bull with a Beatty Corner Manger without going into the pen

Beatty Sanitary Bull Pen

Bad temper in the bull can be avoided by careful and kind treatment and accidents can be prevented if proper facilities and equipment are provided for handling and tying him. It is neither wise nor humane to shut him up in a dark, narrow stall, where he can get neither sunshine nor fresh air and cannot see the rest of the herd. Bulls are more contented and better tempered when they are in open pens and can get a view of the rest of the herd. Moreover they need some space in which to exercise. They must have exercise in order to be most effective in production. If the bull is to be kept in good condition he must be given the same consideration as the cows.

The Beatty Bull Pen will solve these problems. It gives him plenty of room to change his position and move around for exercise. It provides him with bright, sunny sanitary quarters. He can be turned loose in the Beatty Bull Pen, to move all around and see the rest of the herd.

Not only is the Beatty Bull Pen a great help in keeping the bull in the best of health and condition, but it is a tremendous help to the owner or attendant and makes the work of handling the bull perfectly safe, because the Beatty Bull Pen provides the proper facilities for tying and caring for the bull. The corner stanchion, which ties from the passage, makes it both easy and safe to tie the bull securely before entering the pen. You can show off the bull to visitors without going into the pen. You can feed him without exposing yourself to any danger. When the bull is securely tied in the stanchion, visitors or prospective buyers can examine him at close quarters without any danger. The Beatty Bull Pen is exceptionally strong, durable, easy to keep clean and quite as sanitary as Beatty Steel Cow Stalls.

We supply a specially strong manger for Beatty Bull Pens, as shown on page 160. A corner spindle manger is provided, with stanchion for tying, and having a sliding spindle gate to the feed passage so that feed can be put in the manger without going into the pen. By means of a very ingenious lock, the bull stanchion is also operated from the feed passage, so that it is not necessary to go near the bull to tie or untie him. The Beatty Spindle Bull Pen Manger saves work and trouble in every possible way. If you keep a bull, you should not be without it.

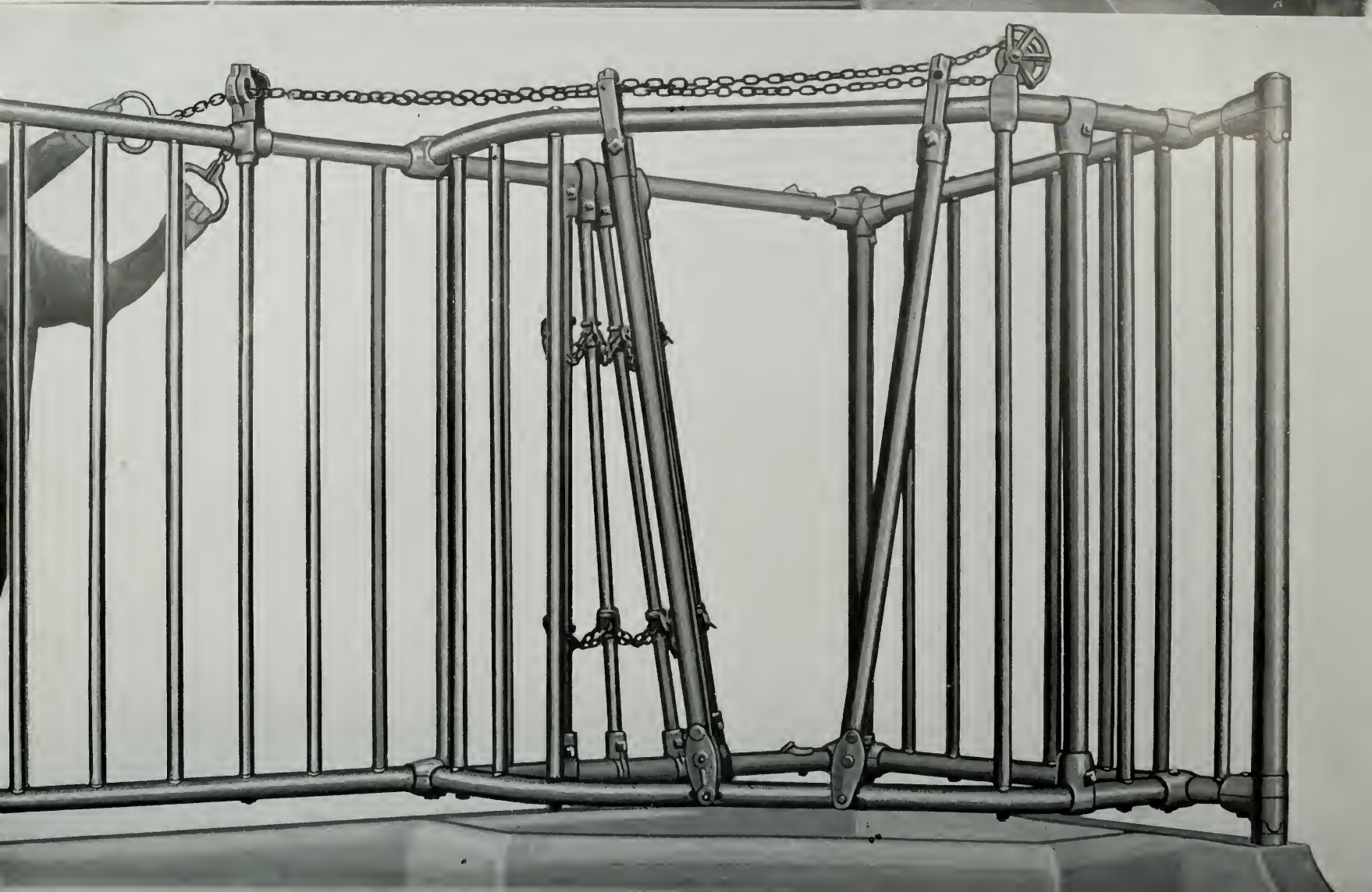
The Spindle Bull Pen Manger always goes in the corner of the pen. It can be used if the wall forms one side of the pen or if both sides are made of steel siding. The gate on the Beatty Bull Pen is shown on page 162. This, like the rest of the pen, is exceptionally strong and heavy and is fitted with a lock that is absolutely bull-proof.

When tied in the Beatty Corner Manger a bull staff can be put in the bull's nose ring as he stands in the stanchion. The stanchion can then be opened and the bull led out without any danger to the attendant.

From the standpoint of profits alone, the provision of proper facilities for handling the bull are of the very greatest importance. A good herd bull has a vital effect on the future production record of the herd.

It frequently happens that a good bull is slaughtered before his value becomes known, because, as he grows older, he becomes harder to handle. Lacking proper facilities for handling him, the farmer finds that it is easier to get rid of the old bull and get a young one. This is often a serious loss to the farmer and to the dairy industry as a whole. A bull that has been proved to produce good milkers should be retained, even if he is hard to handle. It is profitable to do so. A considerable amount of attention has been paid to this point in recent years, on account of the ever increasing production of our herds and the desire of every farmer to preserve the productive and profitable cows while weeding out the boarders.

The Beatty Bull Pen enables the owner to handle the bull, no matter how ugly tempered the animal may be, in safety and with ease, and thus enables the farmer to preserve for many years a good bull whose record is known, instead of being forced to part with him



The Beatty Bull Pen

See Specifications, page 165

It does not pay to take any chances with the bull; even the quietest of them have caused serious accidents.

A strong, steel bull pen, with a proper tying device so that the animal can be quickly tied when it is necessary to enter the pen is the best insurance any farmer can have against an accident with a bull. A strong steel bull pen not only ties him securely, but also gives him plenty of room to exercise himself and keep in good physical condition.

The Beatty Bull Pen is strong, and has a corner tying device, or stanchion, by which the bull can be securely tied without entering the pen.

The bull should always be tied before the attendant enters the pen.

The Beatty Corner Stanchion, Fig. 168, illustrated on the opposite page, is opened and closed from the passage by pulling on the chains which are held in place by slipping the chain over a grab link in the casting on the pen side. Both bars of the stanchion open or close with one pull on the chain. With the chain and grab link there is no fixed position for the neck bars. The neck bars are drawn up tight against the bull's neck and held there by the chain. This is a great advantage in tying a dehorned bull having a thick neck.

The neck bars are very strong, being made of 1⅞-inch outside diameter, solid welded steel tubing and are securely bolted to the bottom manger rail, where there are several holes to allow for adjustment. Note from the illustration on the opposite page that the Beatty Bull Pen Corner Stanchion is securely bolted to the pen, with clamps in which the bolts go right through both clamp and tubing. Also note bolts going right through the spindle from the top rail to the bottom rail, to hold the whole stanchion strongly and securely together.

The frame of the corner stanchion makes a corner manger for feeding and has a sliding opening to allow for putting in the feed. The sliding opening is considered better than a gate. It is more bull proof, is easily opened with one hand and does not swing out into the passage where it is in the road.

Particular attention is drawn to the specifications on page 165. Note the heavy 2⅜-inch corner posts, the heavy malleable clamps with bolts passing right through both tubing and clamp, the strength of the corners and the construction of the panels or siding. The panels are made of heavy inserted spindles, bolted from top to bottom with heavy bolts. The top and bottom rails are 2-in. outside diameter. All tubing in the Beatty Bull Pen is made of solid welded steel tubing, hot galvanized inside and out.

The gate on the Beatty Bull Pen has so many features of its own, and is such an important matter that we have described and illustrated it specially on the next two pages. It should never be forgotten that the bull is an extremely powerful animal. It takes a strong pen, thoroughly well made in every respect, to stand up to the pressure that he will put upon it. Strength is the outstanding point of the Beatty Bull Pen. We should like to impress again the value of the method by which the whole Beatty Bull Pen is bolted solidly together with bolts that go right through the material. This method is stronger and greatly superior to clamps that hold merely by friction.

With the bull in a Beatty Bull Pen, no farmer or dairyman need have any fear for the safety of his children, the hired help or himself.

Detail of Bull Pen Gate Lock

Detail of Combination Pen Gate Lock

Gates for Beatty Cow and Bull Pens

The Gate for Beatty Combination Cow and Calf Pen

art of the pen gets as much use as the gate. Since it is the part of the pen wh h is operated the most, it must be strong. The gate on any Beatty Pen is alwa one of the pen's strongest features. It always has the three requirements of d pen gate: it is durable, safe and handy.

gate posts are very heavy, being made of 2⅜-inch outside diameter solid ed steel tubing, hot galvanized. Illustration on the opposite page shows how posts are braced and anchored below the concrete thus doing away with the ghtly gate arch overhead.

that one piece constitutes the two sides and bottom of the gate itself in the of an arch, which is then braced with a heavy cross bar. The arch construcprevents sagging and is greatly superior to a gate fastened together at the four rs with clamps. The one-piece arch construction prevents the gate from being ed out of shape at the corners, which is always the case with gates that are ned together at the four corners with clamps.

heavy malleable hinges of the Beatty Gate are bolted through the tubing and ot possibly turn on the gate post when the gate is slammed back against the

double gate lock gives double safety and prevents the gate from being twisted. gate can be slammed shut from either side. The locks encircle the gate post do not depend upon entering a latch on the post, which is a great advantage. spindles in the gate are placed 5 inches apart, centre to centre, and the whole is solidly bolted together from top to bottom, right through frame and spindle.

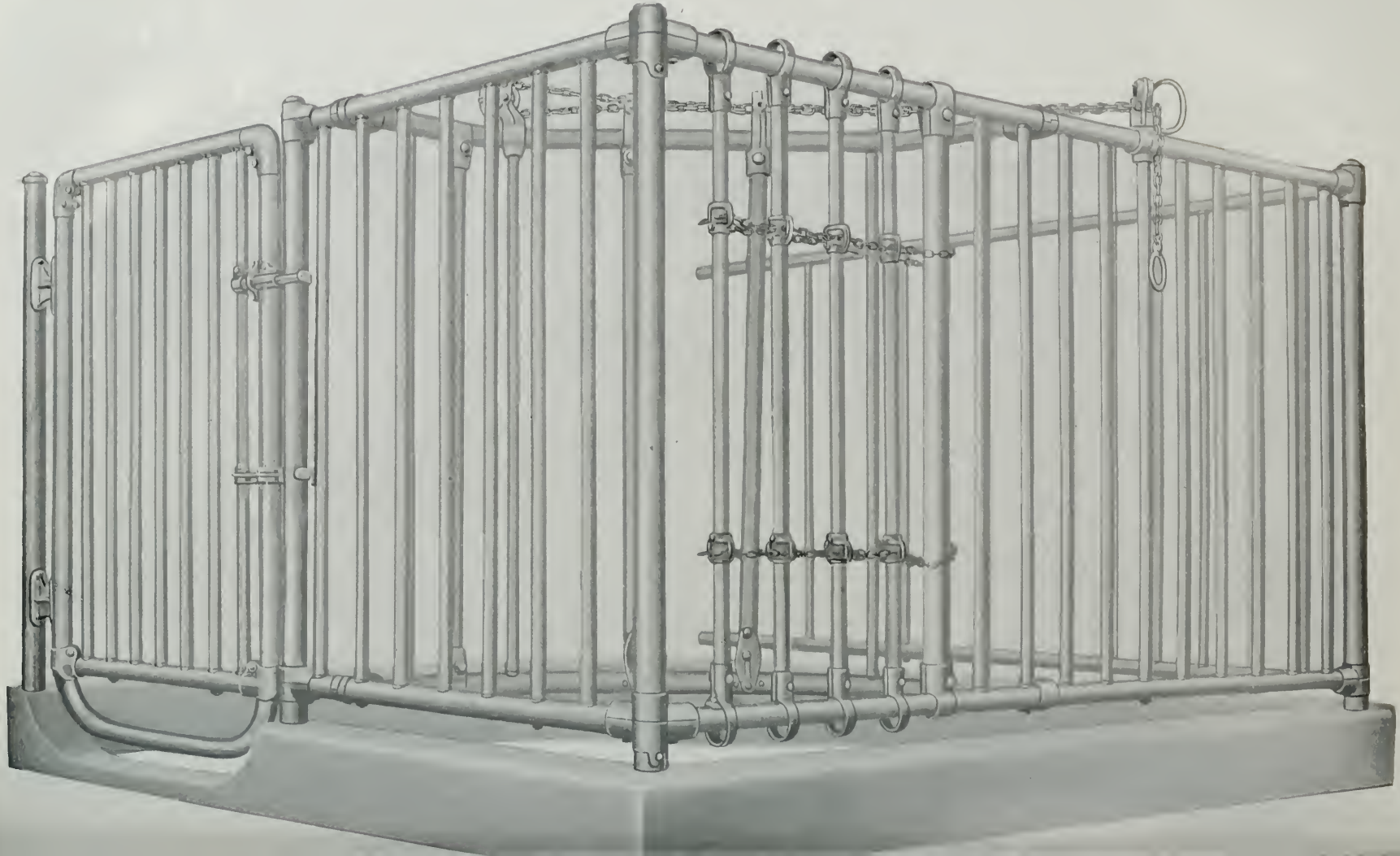
The Gate for Beatty Bull Pen

remarks made above regarding the necessity for a thoroughly strong and trustthy gate apply with even more force to the gate of a bull pen.

will be seen from the illustrations on the opposite page, the general construction ne gate is the same for the bull pen as for the combination pen, except that the is larger and heavier.

detail of the lock is shown in the inset in the illustration, on the opposite . This safety lock is enormously heavy and entirely bull-proof. The ortance of a strong bull pen gate cannot be too strongly emphasized. The bull very powerful animal and when he throws his weight against the gate, it takes avy lock and bolted-through hinges to stand the strain. Note how the Beatty Pen Lock encircles the post to take care of a heavy outward strain.

lock on the bull pen gate allows the gate to open inwards only but locks on the post with absolnte safety. This safety lock is entirely bull-proof. If desired, lug on the bolt can be turned down and a padlock fastened through the holes ided if there is any danger of children or others opening the gate from outside.



SPECIFICATIONS

Beatty Bull Pen—Fig. 294

(Scroll) (Patented)

Corner Posts—2⅜-in. outside diameter, solid welded steel tubing. Length, 5 ft. 3 in. extending right through the curb and well below the floor line. Corner posts are fittted with steel pins, secured in place, to hold post securely below the floor line. Panels stand 5 ft. 1 in. above the floor level.

Intermediate Posts—1⅞-in. outside diameter, solid welded steel tubing. They extend through the curb and well below the floor line. The steel is expanded where it goes into the cement in order to anchor it securely.

Gate Posts—2⅜-in. outside diameter, steel tubing. They are 5 ft. 9 ins. long and extend below the floor line a distance of 8 inches. They are held solidly in the concrete and connected together by means of bolts, spindles and anchors below the floor line.

Panel Horizontals, Top and Bottom—1⅞-in. outside diameter, solid welded full weight steel tubing.

Panel Uprights—1⅝-in. outside diameter steel spindles, set on 6-in. centres. Long, ½-in. bolts run through the top and bottom rails and spindles at intervals of 2 feet, to tie the top and bottom horizontals of panels more securely together.

Gate—Gate consists of a spindle panel. The frame is 1⅞-in. outside diameter, solid welded, full weight steel tubing. Corners are joined by neat, smooth corner clamps. Uprights are set on 6-in. centres and are made of 1⅝-in. outside diameter, steel tubing. Gate is 4 ft. 9 ins. high from top to bottom and is set 4 inches above the floor. Width of gateway from centre to centre of gate posts is 4 feet. Gate is absolutely bull-proof.

Manger—The Beatty Corner Manger and Stanchion is described on page 161 and illustrated on page 160. Upper and lower rails are 1⅞-in. outside diameter, solid welded, full weight steel tubing. Stanchion moving bars are made of the same material. The opening from feed passage to manger is 2 feet in width, as shown on page 160 and described on page 161. The stanchion is opened and closed from the feed passage.

Clamps—Beatty patented, dust-proof, bolted-through, malleable iron clamps.

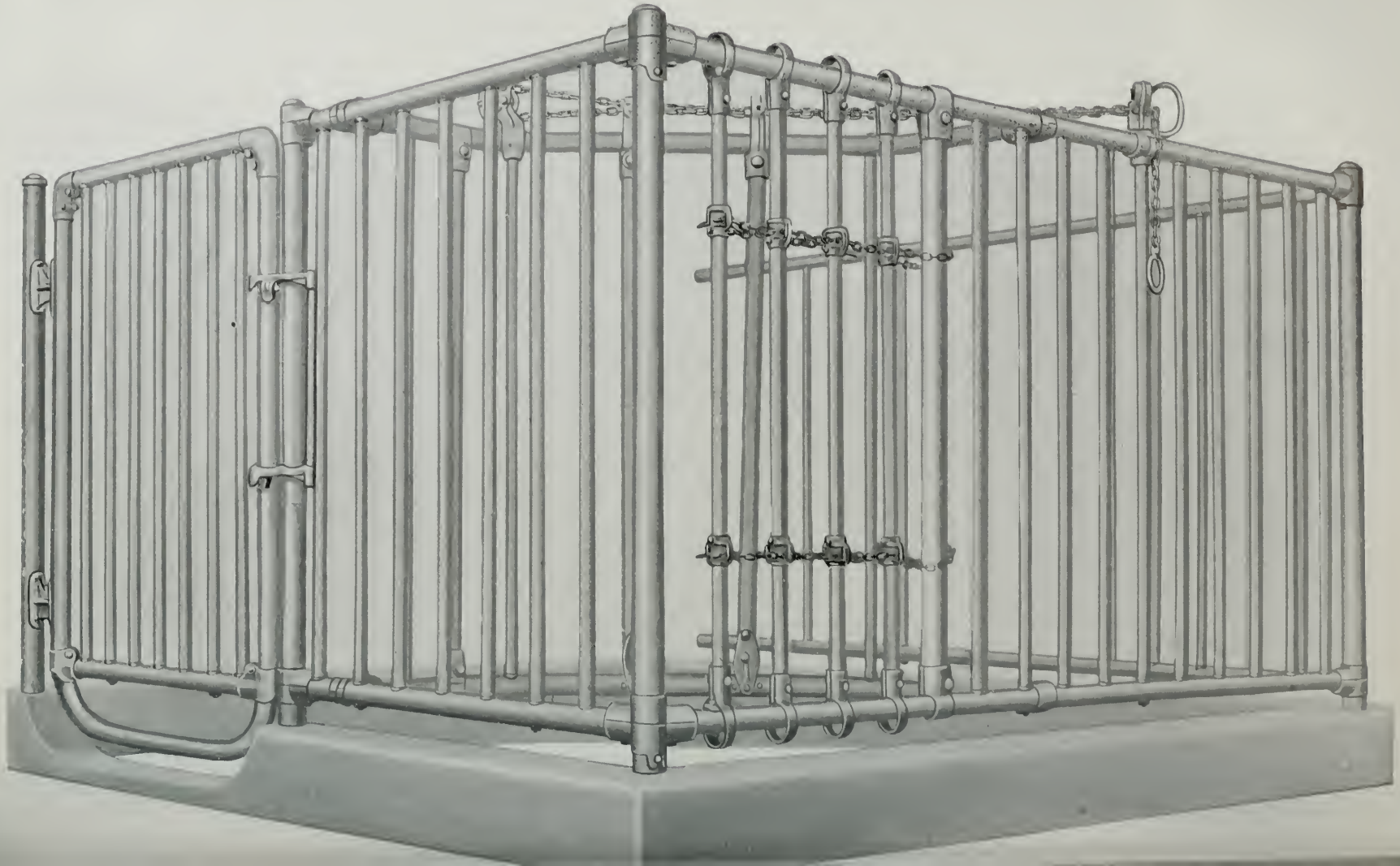
Sizes—Beatty Bull Pens are made to order to suit the stable. A common size is 10 ft. x 12 ft. Always send sketch, showing length and breadth of pen, number of sides required and location on each side. If the wall forms one side of the pen, state whether it is concrete, wood or stone, so that we can send fittings to suit

Finish—All tubing, clamps and parts are hot galvanized, inside and out.

Curb—The pen should be set in a curb 8 inches high and 6 inches wide. The same curb should run around the corner stanchion and manger but should be reduced to 2 inches high under the gate, as shown on the opposite page.

Weight—Bull Pen Siding weighs approximately 25 lbs. per foot.

Beatty Bull Pens are shipped assembled in panels, so they can be set up in a very short time.



Beatty Cow Pen with Corner Manger

When a pen is needed as a cow pen only, and there is no likelihood of it being needed for calves at certain seasons of the year, we supply the Beatty Combination Pen without the stanchion front and with a corner stanchion and manger like the bull pen.

This pen has all the advantages of strength, sanitation, comfort for the cow and convenience for the attendant that have been described in the last few pages in connection with the Beatty Bull Pen. The construction is similar to that of the bull pen, as will be seen by the illustration on the opposite page.

The differences are that the pen is not quite so heavy nor so high as the bull pen, the gateway is narrower and the gate has the same lock as that in the combination pen, as shown on page 162.

Beatty Cow Pen with Corner Manger

SPECIFICATIONS

Corner Posts—2⅜-in. outside diameter, solid welded, full weight steel tubing. They are 4 ft. 10 in. long and extend through the curb well below the floor line. Pen stands 4 ft. 8 ins. above the level of the floor. Corner posts are fitted with anchors, riveted in place.

Intermediate Posts—1⅞-in. outside diameter, solid welded, full weight steel tubing, made in two sections, one section below the lower horizontal rail extending through the curb and well below the floor line. Expanded to anchor it securely.

Gate Posts—2⅜-in. solid welded steel tubing, 5 ft 4 ins. long, and made to extend 8 inches below the floor line. They are held solidly in the concrete and prevented from springing by two long spindles which are bolted securely into place by long half-inch bolts passing between the two gate posts, thus doing away with the unsightly gate arch. See illustration of this construction on page 162.

Gate—Gate consists of a single panel, with a 1⅞-in. outside diameter, solid welded, heavy, bowed frame, upper corners being joined by neat corner clamps. Gate spindles are 1⅜-in. outside diameter, set on 5-inch centres. Top of gate is same height as top of panels, namely, 4 ft. 8 ins. Width of gateway from centre to centre of gate posts is 3 ft. 6 ins. For illustration of gate lock, see page 162.

Panels—Panel horizontals, top and bottom, are 1⅞-in. outside diameter, solid welded steel tubing. Panel spindles are 1⅜-in. outside diameter steel tubing, set on 5-inch centres and secured by plugs inserted in the panels, top and bottom and in the spindle. Long, half-inch rods pass through the spindles from top rail to bottom rail at intervals of about 2 feet, thus bolting the panel solidly together.

Clamps—Beatty heavy, malleable, dust-proof clamps, bolted through.

Manger—The Beatty Corner Stanchion and Manger as shown on page 160. Upper and lower rails are 1⅞-in outside diameter, solid welded steel tubing. Stanchion moving bars are made of the same material. The opening from feed passage to manger is 2 feet in width, as shown and described on pages 160-161. The stanchion is opened and closed from the feed passage.

Sizes—Beatty Cow Pens are made to order to suit the space in the stable. A common size is 10 ft. x 10 ft. Always send sketch, showing length and breadth of pen, the number of sides required and the location of each side. If the wall forms one side of the pen, state whether it is stone, concrete or wood, so that we can send fittings to suit.

Finish—All tubing, clamps and parts are hot galvanized, inside and out.

Curb—The pen should be set in a curb 8 inches high and 6 inches wide. The same curb should run around the corner manger. Curb should be reduced to 2 inches high under the gate, as shown on the opposite page.

Beatty Cow Pens are shipped assembled in panels, so they can be set up in a very short time.

Pen Section Showing Beatty Pens
Barn of Bull & Sons, Brampton, Ont.

Beatty Pens in Barn of Papple Bros.,
Belmont Farm, Brantford, Ont.

Barn of Ontario Provincial Hospital
Whitby, Ont.

Beatty Steer Pens

See Specifications, page 173

To get the most out of steers and to produce beef at a profit, it is just as necessary to save feed and provide healthy, sanitary surroundings for the stock as it is in the production of milk.

It is just as necessary for steers to be fed so that the big bully will not steal from its neighbour, as it is for cows. Anything that will save labor and cut down the time used in caring for the stock will be just as much of an advantage to the owner, whether he keeps steers or milk cows.

Although the majority of farmers find it best and most profitable to stable their steers in steel stalls and stanchions, there are some who prefer to feed their steers in loose pens. The Beatty Steer Pen with stanchion front, is designed for loose pen feeding.

The open steel construction allows sunlight and fresh air to flood every corner of the pens. There are no cracks or corners where lice or vermin can collect and breed. This is most important. Every farmer who has had experience with lice knows how they cut into profits.

In loose pen feeding the Beatty Steer Pen Stanchion Front will be found to be a great advantage. Each steer can be securely tied and fed. The big ones cannot bully the smaller animals and steal or waste their feed. Each one gets his required amount, no matter whether he is a fast or a slow eater. All the steers do better because they are individually fed. None get too much and none too little. There is no waste of feed, as there is with the old-fashioned trough or rack, which is extremely wasteful. Under the old method, pretty nearly as much feed is pulled down and wasted under foot as is eaten by the animals. Feed is too valuable in these days to waste; it should be in the bodies of the steers making weight and profits.

It is the work of only a few moments to tie a row of steers in Beatty Steer Stanchions. One lever operates the whole row and they can all be tied at one time, or individually, as desired. This saves a great deal of time and confusion.

Contrast the open, sanitary, durable and labour-saving steel equipment with the old-fashioned wood pen. The wood pen is dark and gloomy. Wooden racks hold the feed and at feeding time there is a general scramble on the part of the steers. Some eat too much; others do not eat enough. Feeding is a dirty, awkward business. Feed is wasted and the stock do not put on weight as they should.

Beatty Steer Pens are a wonderful help in producting the grade of beef that is profitable. There is always a market for first class beef cattle and there always will be. Poorly finished animals are always plentiful and always poorly priced.

Complete specifications for Beatty Steer Pens are given on page 173. The material used is heavy and strong throughout. Note that the lever which operates the stanchions does not project beyond the end of the stanchion panel. Therefore its operation is not interfered with by a wall at either end. Each stanchion may be opened and closed independently, if it is desired to tie or untie some particular animal. The stanchion has two moving bars, both adjustable, so that the neck space can be made to suit the animal. The stanchion latch is patented.

We recommend the Beatty Raise and Lower Manger Divisions, as described and illustrated on pages 136 and 137, to be used with the Steer Pen Fronts

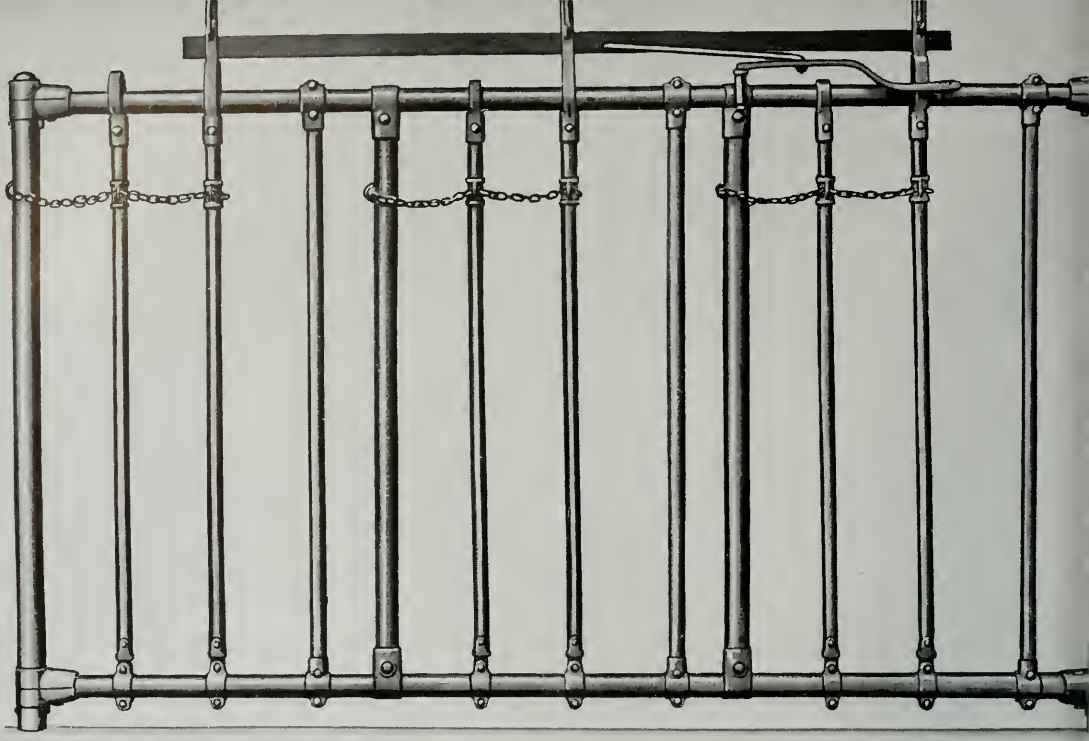
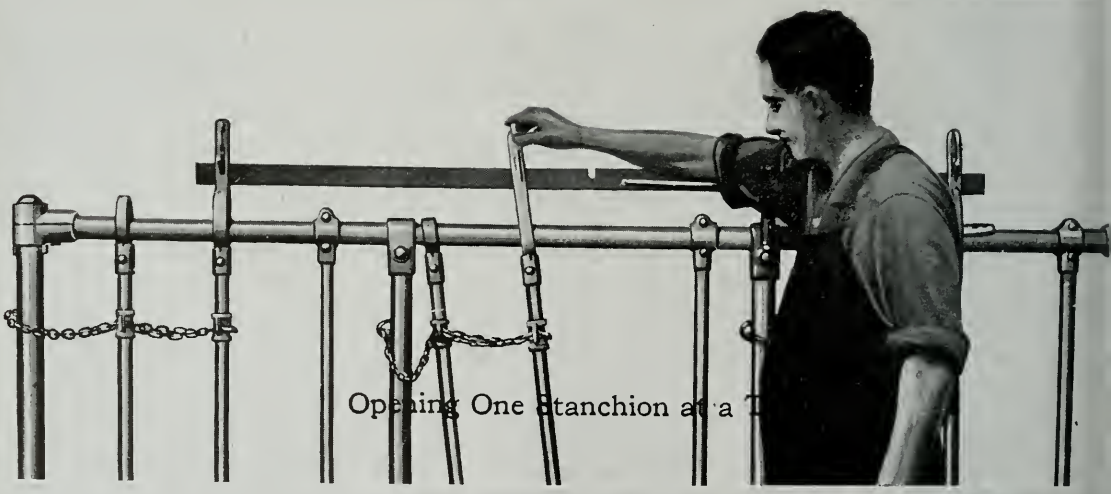
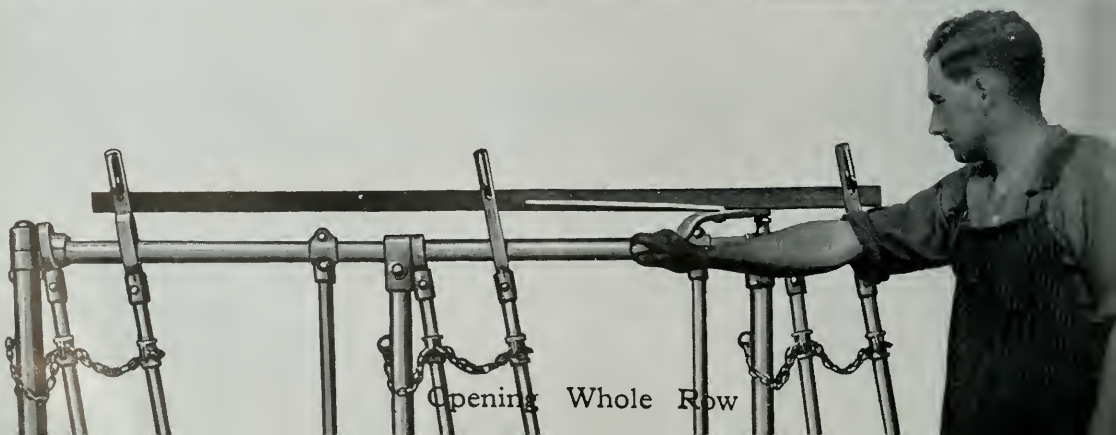


Fig. 542 BT Steer Pen Front



Opening One Stanchion at a T



Opening Whole Row

Specifications for Beatty Steer Pens

Beatty Steer Pens are made of the same material as the Beatty Bull Pen. The siding and gates are exactly the same as those in the Beatty Bull Pen. See page 165. The only difference is that the front of the Steer Pen is made with stanchions, as shown by the illustrations on the opposite page.

A whole row of these stanchions can be opened at one time by means of a lever, for the steers to put their heads through into the mangers. With Beatty Steer Pens, the mangers are built on the outside of the pen, and the steers cannot dung in the manger. If required one stanchion can be opened or closed separately, as shown by the centre illustration on the opposite page.

Note the heavy double-bolt clamps that hold the stanchion neck bars solidly in place. The Steer Pen Stanchion Front has heavy neck spindles, which are made adjustable so that the neck space of the stanchion can be changed to suit different sizes of necks. The clamps are malleable, very heavy, and as with all Beatty Pens, bolts go through both clamp and tubing. This makes a strong stanchion front, which is heavy and solid, and will stand the hardest usage to which it may be subjected by big, rough steers. Detailed specification is given below:—

SPECIFICATIONS

Corner Posts—2⅜-in. outside diameter, full weight, solid welded steel tubing, 5 ft. 3 in. long. They extend through the curb and well into the floor. Held solidly in place by ½-inch anchors, riveted in the tubing.

Fronts—The stanchion fronts are 5 ft 1 in. above the floor level. When a stanchion is opened, two spindles throw back to accommodate a large head. Intermediate posts, made of 1⅞-in. tubing, are set on 30-inch to 36-inch centres. These determine the amount of space allowed to each steer. Stanchion moving bars and upright spindles are 1⅛-in. outside diameter, steel tubing, and are adjustable to suit the neck space required for the animal. In figuring the number of animals to be tied in a given space, specify not less than 30-inch centres between stanchions.

Horizontal Rails—Made of 1⅞-in. outside diameter, steel tubing.

Spindle Sides—Spindles are set on 5-inch centres and are made of 1⅛-in. outside diameter, steel tubing. Steer Pen sides are 5 ft. 1 in. above floor level.

Gate—Constructed the same as the gate for the Beatty Bull Pen. See pages 162-163. The opening of the gate is 3 ft. 6 in. from centre to centre of gate posts.

Clamps—Beatty patented, dust-proof, malleable, bolted-through clamps are used with Beatty Steer Pens, the same as all other Beatty Pens.

Finish—Hot galvanized, inside and out.

All Beatty Pens are built to suit the stable. They are assembled in panels at the factory, with clamps for joining in their proper places. It is a matter of but a few minutes to set up a Beatty Pen, ready for the concrete. Beatty Equipment comes ready made and ready to set up. It is not necessary to set each upright post in the cement separately, because the pens are made in panels.

Make Sure Your Pens Are Galvanized

The importance of galvanizing stable equipment, to enable it to withstand the attacks of stable acids and moisture has been stressed so thoroughly in the earlier pages of this book that we need only mention the point here.

It is just as important to have your pens galvanized as it is to provide this protection for your cow stalls. For the sake of the appearance of your stable and the durability and cleanliness of the equipment, insist on having pens galvanized.

Hog Barn, Don Alda Farms
Duncan, Ont.

Tilting Panels keep hogs away from trough while putting in feed.
Hog Barns, University of Alberta, Edmonton.

Hog Barn, Don Alda Farms

Beatty Sanitary Hog Pens

See Specifications, page 183

Sunshine is almost as important as food in the raising of hogs and other farm stock. The value of sunshine is only recently becoming well known, a sign of which is that human beings are now taking sun treatment for a number of different diseases. Sunshine has been proved not only to prevent disease, but, what is still more important, to stimulate growth. Every farmer in the hog business knows the advantage, from the standpoint of profits, of having his hogs grow quickly and of having them finished in the shortest possible time.

Note how the sunshine floods through the open steel construction of Beatty Hog Pens, as shown by the illustration on the opposite page.

Hogs are quite as much, if not more, liable to fatal diseases than other kinds of stock. The heavy death rate in young pigs reduces the profits very greatly on many farms, and the cause can nearly always be traced to dark, damp, unsanitary hog houses. The little pig is one of the most delicate of animals. The new born pig, farrowed in January, February or March, must be properly housed or the work of raising early pigs will certainly be unprofitable.

The Importance of Sanitary Quarters

There is no animal that needs more protection from cold; none more susceptible to disease from damp; none which will show a better profit when conditions are right and surroundings healthy, than the hog.

The biggest advantage of Beatty Steel Hog Pens is that they permit of sanitary conditions. Beatty Pens permit plenty of sunlight and fresh air to enter. The pens can be much more easily and effectively fumigated than wood; which is a big item to be taken into consideration, especially among those hog raisers who disinfect their barns frequently. There is practically no danger from hog cholera, nor of loss from lice, with steel pens.

Beatty Pens can be more easily and quickly cleaned than wood pens. They are always dryer than the wood pens because the sunlight can flood every square foot of floor space and because the open steel work does not interfere with proper circulation of air.

Beatty Hog Pens are practically everlasting; the first cost being the only cost, whereas wood pens rot out in a short time. This necessitates replacing the entire outfit so that the wood construction costs more in the end than the steel and has none of its advantages. Without doubt, one of the main reasons for the big increase in recent years in the sale of Beatty Steel Hog Pens is the fact that hogs are very destructive to pens made of wood.

Easy to Erect

The pens are shipped assembled in panels. To erect the pens it is only necessary to set the corner posts and gate posts and pour in the concrete. When this concrete has set, the pen will be solid. The great amount of labor saved in the erection by using Beatty assembled steel panels is a big item. Figure the labor required to build a wooden pen and you will find that it goes a long way towards paying for the steel pen.

The Farrowing Rail protects the li
Barn of A. H. Fair, Kingston, Ont

The Farrowing Rail

Too much stress cannot be laid on the importance of the farrowing rail. When the sow lies down, the farrowing rail will prevent her from crushing the little pigs against the walls. They will be pushed under this rail and protected in the space between the rail and the wall or panel. The farrowing rail should be 10 inches from the floor and the same distance from the wall or panel, and should extend around three sides of the pen. The Beatty Farrowing Rail may be lifted up out of the way after the little pigs are able to take care of themselves and the farrowing rail is no longer needed. Lifting the farrowing rail converts the pen into a feeding pen. See the illustration on the opposite page.

The Swinging Panels

The swinging front panel will appeal to every man who has ever taken an active part in the work of hog feeding. It does away with any need of straddling the fence, kicking the old sow in the ribs and at the same time trying to keep a dozen or so little pigs away from the trough while attempting to pour in the liquids. By means of a lever in the front of the pen, the swinging panel can be swung back and locked, to keep all the hogs away until the feed is put in. The panel is then swung back again, where it locks and forms a solid front for the pen. The convenience of this feature is illustrated on pages 174 and 175.

Beatty Steel Hog Pens are Fireproof

Beatty Hog Pens are absolutely fireproof. The risk of fire must always be borne in mind when designing or equipping any buildings. Cement floors and steel equipment provide no chance for a fire to start if a lantern should be upset. Fire Insurance Companies recognize the value of this point by decreasing fire insurance rates when a stable is steel equipped.

Construction of Hog Pens

For details of measurements and suitable plan for a hog house, see page 61. Page 60 shows a hog house made from a similar plan. Page 183 gives complete specifications.

Hog Pens, Remodelled Barn of Edward Johnston

Construction of Beatty Steel Hog Pens

In order to give the lifetime of service and satisfaction that the owner has a right to expect when he installs steel equipment, any steel pen must be very strongly made and carefully designed.

Beatty Steel Hog Pens have much in common with the Beatty Steel Calf, Cow and Bull Pens, which have already been described. They possess the advantages of the other Beatty Pens, with the extra conveniences and equipment needed for handling hogs easily and economically.

In any pen the corner posts are of the greatest importance, because they carry the main strain of the pen. Corner posts in Beatty Hog Pens are very heavy, being made of 2⅜-inch full weight steel tubing well anchored to take firm hold in the concrete. Like all other Beatty Pens, the Hog Pen is connected together by the patented Beatty malleable, bolted-through clamp. No pen or stall is better than the clamps which connect one part with another, so it is important to note that we do not depend on clamps that hold by friction only. In all Beatty Clamps a strong bolt goes right through both clamp and tubing, thus making an absolutely solid connection. There is only one bolt to tighten in Beatty Clamps, which saves much time in erecting the equipment.

The panels are formed by inserting spindles into the top and bottom rails. This avoids the use of clamps at points where they would be sure to collect manure and dirt, whereas the smooth spindle does not. Spindles are set so that there is only about 2½ inches between the bars, thus giving young pigs no chance to escape. The panels are strengthened and bolted together by long bolts, which pass through top rail, spindle and bottom rail. These bolts are spaced about two feet apart.

The gate is built in the same way as the gates on Beatty Cow and Bull Pens. Gate posts are braced under the concrete as shown on page 162 thus doing away with the unsightly overhead gate arch. The lock is the same as that used on the Beatty Cow Pen, page 162. The gate itself has the same heavy bowed frame which strengthens it and keeps it from sagging. In order to keep young pigs from getting out, the space between the bottom of the gate and the horizontal brace is blocked by a row of spindles.

All tubing is full weight, solid welded steel tubing. All tubing, clamps and parts are hot galvanized, inside and out. Beatty Hog Pens are made to stand up to hard work, day in and day out, and give satisfaction for a lifetime. Full specifications are given on page 183.

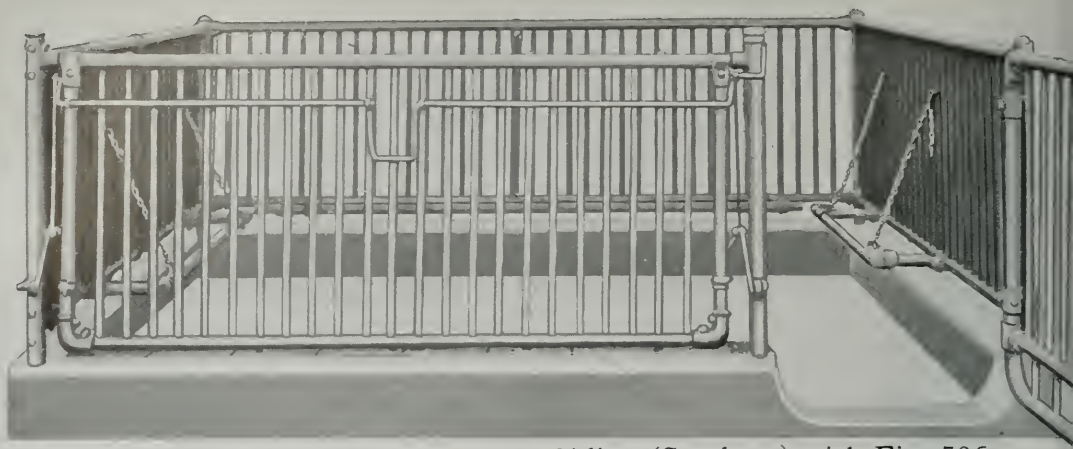
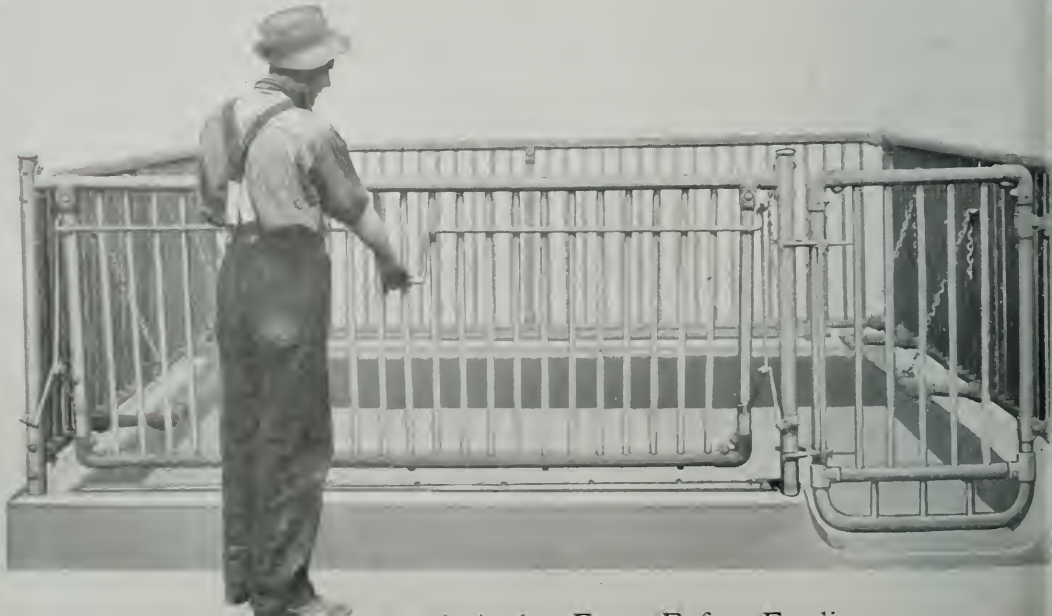


Fig. 583—BT Spindle Hog Pen Siding (Sandano) with Fig. 726—Swinging Front (Sander) Fig. 716—Hog Pen Gate (Sande) and Fig. 739—Farrowing Rail (Sanduck)

Same Pen as above with Gate Closed



Beatty Hog Pens—Fig. 583

(Sandano)

SPECIFICATIONS

Corner Posts—2⅜-in. outside diameter, full weight, solid welded steel tubing, 4 ft. 1 in. long. They extend well into the floor. The tubing is fitted below the floor line with ½-inch anchor pins, secured in place, to give the post a thorough grip on the concrete. Pen siding stands 3 ft. 11 in. above the floor level.

Intermediate Posts—1⅞-in. outside diameter, full weight, solid welded, steel tubing, going through the concrete curb and well into the floor. Supplied on spans over 8 feet.

Gate Posts—2⅜-in. outside diameter tubing, same quality as corner posts. They are 4 ft. 7 in. long and extend 8 inches below the floor level. Anchored to the concrete by ½-inch rods and 1⅛-in. spindles. (See page 162.)

Panel Horizontals—1⅞-in. outside diameter, full weight, solid welded steel tubing.

Panel Uprights—Spindles are set on 3½-in. centres and are made of 1⅛-in. outside diameter steel tubing. Top of panel comes 3 ft. 11 in. above the floor level.

Gates—Gate frame is made of 1⅞-in. outside diameter, full weight, solid welded steel tubing. See illustration on page 162. Spindles in gate are set on 3-inch centres and are made of 1⅛-in. steel tubing. Gate lock is the same as for Beatty Cow and Calf Pen and is shown on page 162. Horizontal brace on gate is also 1⅞-in. tubing, and the space between this and bottom of gate is filled with vertical ½-inch steel rods. Gate measures 2 ft. 6 ins. from centre to centre of gate posts.

Clamps—The same neat, dustproof, sanitary, bolted-through clamps made of malleable as used in Beatty Calf, Cow and Bull Pens.

Farrowing Rail—1⅞-in. outside diameter, full weight, solid welded steel tubing. They extend out from the pen side a distance of 10 inches and are hinged to the panel horizontal at both ends so that they can be turned up, out of the way, when not in use. When lowered, the farrowing rail is held in position by a chain at both ends. The hinge clamps, Fig. 404, are tight enough to hold the farrowing rail in position when raised. There should be a farrowing rail on three sides of the pen.

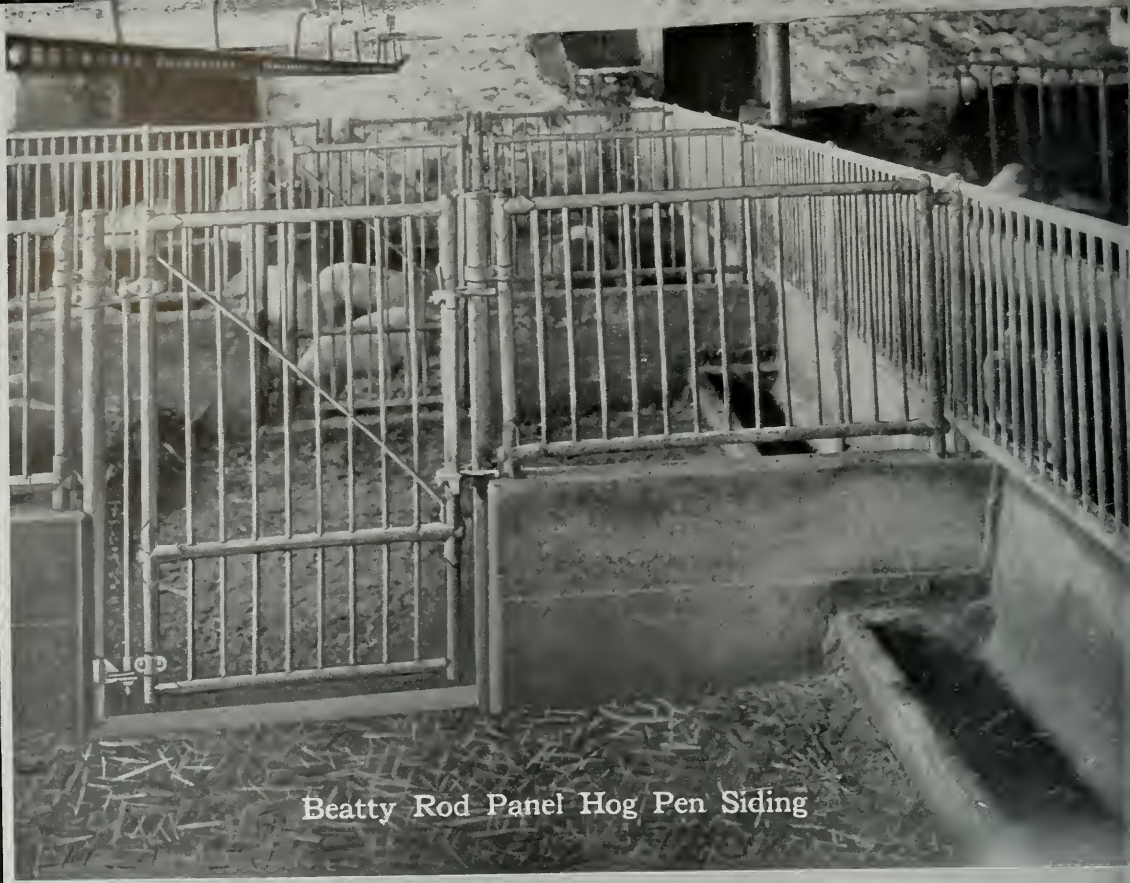
Swinging Panel—Siding has same specifications as the other three sides of the pen. It swings in a clamp at both ends. It is swung back by lifting a lever, as shown in the bottom illustration on the opposite page, and locks in position automatically to allow the feed to be emptied into the trough.

Sizes—To finish 8 hogs, a pen 10 feet wide and 12 or 14 feet deep is required. For 10 hogs, 12 feet x 12 feet should be the dimensions.

Curbs—These pens should be set in a cement curb, 8 inches high and 6 inches wide. Under the gate, the curb is 2 inches high.

Finish—All tubing, clamps and parts are hot galvanized, inside and out.

Trough—Use Fig. 704 Lining for cement trough, page 188.



Beatty Rod Panel Hog Pen Siding

Beatty Rod Panel Hog Pen Siding from feed passage

Beatty Rod Panel Hog Pen Siding

On pages 186 and 187 is described Beatty Rod Panel Hog Pen Siding.

This type of construction has all the advantages of sanitation, durability, and freedom from risk of fire already indicated in the description of Beatty Spindle Panel Hog Pen Siding. It also has the advantage of permitting light and air to circulate freely through the hog pens, which, in itself, is a most valuable advantage as compared with the old-fashioned solid wood partitions, which not only make the hog pens dark and damp, but are difficult to keep clean and sanitary.

The great necessity of keeping hogs dry and providing them with strictly sanitary quarters, if hog-raising is to be profitable,—has already been dealt with. Beatty Rod Panel Siding will provide the owner with hog pens that will meet every test in this direction, as thoroughly as the heavier Spindle Panel Hog Pen already described.

Advantages of Rod Panel Siding

As will be seen by the illustrations on the opposite page and on page 186, Beatty Rod Panel Siding does not come right down to the level of the ordinary curb. It is set in a curb four inches wide and twenty inches high. For this reason, it is not necessary to use the same heavy spindle as that employed in the spindle panel.

This makes it possible to use a lighter form of construction, where steel rods take the place of the spindle. This makes the rod panel siding more economical to buy, without losing the many advantages of sanitary steel construction.

Like all Beatty Pens, Rod Panel Hog Pens are made and shipped in complete panels, so that when the corner posts are set in the concrete, the work of erection is practically done. This saves hiring carpenters, boarding them while the work is going on, and enables the farmer to get the work done in a much shorter time.

Feeding Arrangements

In this type of construction, the swinging panel is not used. Instead the front of the pen is built so that it runs midway over the manger. This keeps the hogs from getting in the way when the feed is being poured in and at the same time, leaves lots of space for the attendant to pour the feed into the manger.

As shown in the illustrations, there are no spaces where even the smallest pigs can get out. The bottoms of the gates are formed of a solid galvanized sheet and the rods of the panelling are so close that the animals cannot possibly get away.

See complete specifications on page 187. Note that these pens are thoroughly galvanized.

Beatty Rod Panel Hog Pen—Fig.

The construction of the Beatty Hog Pen, when built of rod panel siding, is shown on the opposite page. When this method is used, the cement curb is carried up 20 inches above the floor level instead of the regular 8 inches, and the rod panels are set on this curb.

This type of pen, like all other Beatty Pens, allows sunlight and fresh air to flood the pen. It is easy to keep it clean and sanitary. It is durable and will last for years. The hogs cannot injure it. It is easy to install and will pay a large part of its cost in the time and labor it will save in comparison with that needed to build a wood pen.

It is not equipped with the swinging panel for feeding. In place of this, the front panel is built over the centre of the manger as shown on page 186, thus permitting the attendant to put in the feed without being interfered with by the hogs.

Special clamps are used in this equipment, and are sent riveted in place on the panels. They are very neat, are made of malleable, and have no cracks or joins in which dirt or lice can collect.

Gate posts are made of cold drawn solid steel. These are drilled for hinges and have to stand the shocks of opening or closing the gate, so we have made them as strong as possible.

The same lock is used in this pen as that used in Beatty Cow and Calf Pen, described on page 163.

SPECIFICATIONS

Height—Curb is 1 ft. 8 ins. high. Space between top of curb and bottom of lower rail of panel is 3 inches. Overall height of pen, 4 feet from floor level.

Panel—Frame of panel is made of 1 5/8-in. outside diameter, steel tubing. Rods are 3/8-in. solid steel, set on 3-inch centres.

Posts—Gate posts are made of 1 5/8-in. solid cold drawn steel. Other posts are made of 1 5/8-in. outside diameter, steel tubing. Posts go down into concrete curb 8 inches and have 4-inch anchor pins secured in them to anchor them firmly to the concrete

Gate—Material in gate panel is the same as described above for the other panels. Space at bottom is closed by solid sheet of galvanized steel. Hinges and lock are the same as those used in the Beatty Cow Pen, shown on page 162. Hinges are riveted as well as bolted to the gate post and gate, so that the hinges will not turn when the gate is slammed back. Gate can be set to open either inward or outward. Gate swings back and lies flat against the pen side, so that the opening is left absolutely clear. Gate is 2 ft. 6 ins. from centre to centre of gate posts.

Clamps—Neat design of clamps is shown in the illustration. Made of malleable. Riveted solidly to the tubing

Curbs—As stated above, curbs should be 1 ft. 8 in. high. They should be 4 inches wide. Under the gate they should be shaped to suit the bottom of the gate, leaving about 2 inches of clearance between the bottom of the gate and the top of the curb. This will leave the concrete about 6 inches deep under the gate.

Finish—All tubing, clamps and parts are hot galvanized, inside and out.

Beatty Sanitary Steel Hog Troughs

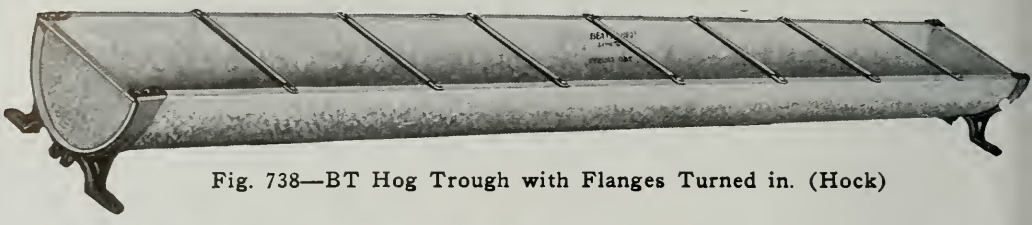


Fig. 738—BT Hog Trough with Flanges Turned in. (Hock)

Fig. 704—BT Steel Lining for Cement Hog Trough. (Hob)

A well-made Beatty Hog Trough has many advantages over any other type of trough. In the first place, it will outlast any other type of trough. Being made of malleable and steel it is durable and cannot be injured by the hogs. In addition to this, a Beatty Hog Trough is sanitary. It is easy to keep it clean. It will not absorb fermented foods and become objectionable. It has no cracks in which sour feed or disease germs can collect. The Beatty Hog Trough is easily moved and easily cleaned.

Wood troughs are certainly not durable. They are soon eaten out. They rot and become useless in a very short time. They are certainly unsanitary. They collect dirt and sour feed, while the cracks absorb the decaying food and provide a lodging place for disease germs of all kinds. Wood troughs are wasteful of feed. The hogs soon break off the cross bars. There is no flange along the side to keep in the feed, so that it is easily thrown out and wasted.

Cement troughs are open to many of the same objections as wood. Like wood, they do not last long. The nature of the food and the action of the pigs' feet soon cause the bottom of the cement trough to crumble and get rough, after which it is not long before the cement trough breaks up. They, also, have no cross bars or flanges to save the feed. When a cement trough is finished, there is nothing else for it to break it all out and put it all in again.

Beatty Steel Troughs are economical and indestructible. They last for years and are equipped with crossbars and flanges to save the feed. Being sanitary, they will not cause hog cholera, nor help it to spread. Beatty Steel Hog Troughs can easily be moved from place to place. This is an advantage when hogs are to be fed outside that cement troughs do not possess. The cost of a Beatty Steel Trough is very small, but it is an investment that will give good service and save trouble for years.

The Construction of Beatty Hog Troughs

Beatty Hog Troughs are made of heavily coated hot galvanized sheets. There is nothing to rust. The joint by which the sides are joined to the ends is designed so that the harder the pressure on the inside of the trough, the tighter the joint becomes. No spot welding is used in Beatty Troughs. The cross bars are all riveted to the sides of the trough. The feet which support the trough at each end are made of malleable iron and galvanized. They cannot break.

Showing Strong End

The sheet that forms the body and ends of the trough is 20 gauge heavily coated galvanized steel. Trough is made from a solid sheet unless over ten feet in length. The ends of the body sheet are bent to form a deep groove to receive the ends of the trough. The ends of the trough are bent in the form of an L, which fits into the groove. The connection is then pressed to make a lock-tight joint. It is then soldered.

The flanges that run along the top edges of the trough are made by bending and folding over the upper edges of the body sheet. These flanges are 1 inch wide and are turned in to prevent waste of feed.

Half-inch steel cross bars are riveted with ⅜-inch rivets, (not welded) to these flanges at intervals of one foot. These cross bars prevent hogs from crowding and wasting feed.

SPECIFICATIONS

Beatty Hog Trough—Fig. 738

(Hock)

Sides and Ends—20-gauge, heavily coated, hot galvanized sheets. Joined together by patented lock-tight joint, as specified above. Connection is then soldered.

The Foot—Made of malleable iron and galvanized. Riveted to the top corners of the trough. Has holes bored in it so that trough may be fastened to the floor if desired.

Cross Bar—Made of ½-inch steel, and spaced one foot apart. Riveted to flange by ⅜-in. rivets. No spot welding used.

Flange—1-inch wide and consists of a double thickness of the steel sheet. Flange is turned in, and does a lot to save feed.

Finish—All parts are hot galvanized.

Sizes—Troughs are made in lengths of every foot from 3 ft. to 10 ft. inclusive. It is preferable to have troughs not over 10 ft. in length as this is the longest that can be made in a single sheet. All troughs are made 12-in. wide, 5½-in. deep over all. Inside dimensions,—10-in. x 5-in.

Steel Bottom for Cement Hog Troughs—Fig. 704

Fig. 704 illustrates the steel lining for cement hog troughs. Material and specifications same as hog troughs, except that they have no ends.

In Summer, green feed and lots of
mean high milk production.

In Winter, you get the same results by givi

You Are Paying For Water Bowls—Why Not Have Them

Water Bowls Pay for Themselves in First Season

Water Bowls pay for themselves in the four following ways:— By increasing milk production; By saving feed; By improving the health of the cows and saving veterinary bills and by saving time and labour. They will pay for themselves in one season.

Do you know of any investment you can make that will pay you back the money invested in the first season? A water bowl outfit will do just that. Moreover, it will go on paying back the money *every* season. It will pay for itself every year. No one could expect to find a better investment than that.

So confident are we that Beatty Water Bowls will increase milk production, and save money in the other ways outlined above, that we will guarantee that they will pay for themselves, in one season. That is to say, the increase in milk and other savings will pay for the water bowls in the first season if, previously to their installation, cows had been turned out into the cold to water. Many farmers have made this test. In fact, the letters we have received indicate that we could make our statement much stronger, and still be stating facts. The reason for a greatly increased milk yield when water bowls are installed is easily explained. Milk is 87 per cent. water, the other 13 per cent. being made up of sugar, protein, fat and mineral matter. If a cow is to produce large quantities of milk, she must drink large quantities of water. But this is not all. Not only must we remember that there are 87 pounds of water in every 10-gallon can of milk that a cow produces, but we must also count what she needs for the other purposes of her body. Every breath a cow exhales carries out a large proportion of water. She requires water for the digestion and assimilation of her feed; she requires water to take the nutrients into solution and carry them into the blood stream. Without the proper amount of water, the passage of feed from one stomach to the other is hampered; without water the regulation of the body temperature is impossible and the health of the cow and her milk production both suffer.

If we are to get large milk yields, the cow must get plenty of water, always available, so that she can drink whenever she needs to do so. One of the secrets of getting cows to produce heavily is to get them to drink plenty of fresh, pure water. A good cow must have from 15 to 20 gallons of water every twenty-four hours, and high producers require more. Below we quote two actual experiences of practical farmers with Beatty Water Bowls, taken out of dozens of other similar letters:—

From Mr. Henry Beamish, Norval, Ontario.

I am ordering today one of your sling carriers. I hope it will give as good satisfaction as your water bowls I bought three years ago. I have tested out the water bowls and find that with fifteen cows milking on the average, I get at least one can of milk extra per day. You can figure out the percentage increase for yourselves. I wish all my equipment was your make.

From Hemlock Park Stock Farm, Kingston, Ontario. August 11, 1924.

Last Wednesday night the storm broke down the electric wires, shutting off the power here for pumping water. The power was off about seven hours and the water tank ran dry. This tank waters 52 cows in the big barn. Our Dairyman's reports show milk for Wednesday at 2193 lbs. and for Thursday, 2074 lbs. Next day, the production went up again to 2163 lbs. You will notice that there was a loss of 118 lbs., although the water had been shut off for not more than seven hours, and for part of this time the water supply would be O. K. until the tank ran dry.

The Old Way—Hard on [illegible] and Lowers Milk Production.

The Beatty Way—Cows always watered—Good for the

Water Bowls Improve Cow's Health

The old way of herding the cows out to water is the cause of many a veterinary bill. If an animal is driven out in the cold to shiver, she gets chilled, inside and out. Before it can digest, feed has to stay in her stomach until it reaches a temperature of about 90 degrees. When a cow is driven out in the cold, she gets so thoroughly chilled that it is often an hour or more before digestion commences. This is the cause of many a severe attack of indigestion and of many a "vet's" bill. If on the other hand the cow is so thirsty that she gulps down large quantities of ice-cold water, she gets suddenly chilled, with the result that she becomes affected by bloat and other digestive diseases. In addition to these considerations, there is the danger of injury to the cow when she is driven out on icy paths. Many valuable cows have lost their calves through being driven out to water and by being hunted around by their companions or by slipping on the ice. By giving the cows all the water they want, at any time, at the right temperature, right in the stable, Water Bowls save all these troubles and chances of loss.

Water Bowls Save Feed

A cow consumes feed for two purposes—to maintain her body heat and to produce milk. So far as the feed consumed for heat is concerned, therefore, we can say that feed is so much fuel. When a cow is driven outdoors to shiver in the cold, she is losing body heat very fast. It is much the same thing as piling coal on a furnace on a cold day, then going away and leaving the furnace door open. As the coal is wasted in the furnace, so is a large percentage of the food wasted in the cow.

Water Bowls prevent this waste of heat in two ways. They prevent loss of body heat in the cow herself, and they make it possible to keep the stable doors shut so that the stable does not get thoroughly chilled. A certain level of body heat is necessary for the maintenance of life. The more feed a cow uses to create heat, the less she will have for making milk, and the more feed she will consume. With Water Bowls in the stable, the largest possible proportion of the feed consumed makes milk, instead of restoring unnecessarily wasted heat.

Another very important point is that cows will eat far more roughage when they can take plenty of water. They can get the water at any moment with Water Bowls, so they save the more expensive feeds.

Water Bowls Prevent Disease

Water Bowls prevent the spread of contagious disease from one beast to the other because a properly constructed water bowl does not allow the water to run from one bowl to the other. One cow is not drinking the spittle from the others, as in the case of the continuous trough.

Continuous troughs for watering, whether inside or outside the stable, are condemned by the best Sanitary Authorities, Milk and Stable Inspectors and all good dairymen generally, because of being a dirt trap, unsanitary and a spreader of disease.

Furthermore, continuous troughs are not automatic, nor is the system self-regulating, like water bowls. Water Bowls give continuous watering at any time of day or night, and that is what you need. Moreover, the trough gets uneven, cracks and leaks, after which it rots the stalls, wastes food and causes no end of inconvenience.

If cows are watered inside from water bowls, they do not get a chance to drink from filthy barnyard puddles. They do not load up their systems with the impure water; they cannot contaminate the water that they are required to drink. If this is allowed, an infection may soon start which will soon extend to the whole herd. It does not take much loss from disease to pay for a whole outfit of water bowls.

INSIDE
With Beatty Wate
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Water Bowls Save Labour

In addition to the increase in milk flow, the saving of feed and the better health of the animals, water bowls will pay for themselves in the saving of labour.

It takes from half-an-hour to an hour,—according to the size of the herd,—to untie, drive out, see that they are properly watered, drive back and tie in again, a herd of cows. This should be done at least twice a day, and even then the cows will not get nearly all the water they need. Therefore, from one to two hours are saved every day by the use of water bowls. On farms where help has to be hired, the saving in actual cash in a year will be considerable.

Not only do water bowls save this time, but they save a very unpleasant job. Every man dislikes herding cows out to drink on a cold, wet, sleety day. It is a miserable job in itself, and still worse, the wet cows have to be tied in again. Nothing is more disagreeable than crowding up between the wet cows to see that they are tied, and then having the task of milking them with the water dripping off their flanks.

The use of water bowls eliminates all this and makes the watering of the cattle a labourless and automatic matter. It also saves the work of digging paths for the cattle, thawing out the pump and pumping the tank full.

Water Bowls Improve Quality of the Milk

Impure water is liable to give the milk a bad taste. Ropy milk is often due to contact with mud or muddy water. By providing lots of fresh water for the cows, Beatty Water Bowls overcome this difficulty.

If You Keep Feeders and Stockers

If you keep feeders and stockers, water bowls will do as much for you as they will for the dairyman.

They will increase production. They will save feed. Steers will eat more roughage so that your more expensive feeds are saved. They will save labour, as much for the man who keeps beef cattle as for the one who is engaged in dairying.

Mr. John Stewart, of Ailsa Craig, a very prominent feeder of beef stock, made the statement that it did not pay to turn the steers out for water. His experience in feeding from 80 to 100 steers, was that it paid to tie them in, give them plenty of water in water bowls, and keep them quiet. When this was done, they would put on fat faster and with less feed. Read the following letter from Mr. J. J. Cochrane, which gives the actual experience of a practical feeder. As a test, try your cattle after feeding. Just for one night, carry into them all the water they will drink and count the number of pails. Do this, and you will be convinced that water bowls will pay.

It is impossible to overstate the advantages of water bowls to either the dairyman or the beef raiser. They are as much an essential as proper means of tying and feeding.

Angus, Ont.

I have had 20 of your best bowls for three years. I feed stock for beef only, and I consider that I have made the price in extra beef and health to my cattle at least three times since I bought your bowls. I make this statement without considering the amount saved in labour. One of your travellers asked my opinion and I am glad to give it to you as above.

Yours truly,

J. J. Cochrane.

Fig. 354 (Shunt) Beatty Wat
Bowl for Gravity System.

Cross Section of Beatty
Water Bowl

The Big Beatty Water Bowl

The Big Beatty Water Bowl, shown in Fig. 354 on the opposite page, is the best. It is strong, to stand the roughest usage from the cow or the big steer. It is well-shaped and accurately designed. It is large in capacity, for a big drink.

It measures 10½ ins. across the top one way, and 11¼ ins. the other way. It is 8½ ins. deep, not counting the cup-shaped recess at the bottom. It weighs 19 lbs. The best feature of this bowl is its depth. This gives a greater head of water, so that the bowls fill rapidly. The cows do not sip and suck water and form the habit of lapping water out of the bowls, as is the case when bowls only about five inches deep are used.

The deep Beatty Bowl is also easier to instal, because the great depth will take care of a slight variation in the level of the bowls. If a shallow bowl is an inch or two higher than the others in the row, there will scarcely be any water in it. Therefore extra care must be taken with shallow bowls to see that they are level.

Beatty Bowl Is Neat In Appearance

The Beatty Bowl was made especially for steel stalls and looks well on the stalls. A row of Beatty Water Bowls improves the appearance of the stable. The long, shallow type of water bowl has an awkward appearance, especially when used with steel stalls.

The Cow Cannot Splash

The great depth of the Beatty Water Bowl has another great advantage. It prevents the cow from splashing the water out into the manger or over the passage. Some cows get this habit.

If they should develop it with Beatty Water Bowls, it is easily overcome. Bend down the float rod in the regulating tank an inch or two, so that the water will not come up so high in the bowl. After the cow has forgotten the habit, bend it back and let the water come to the top again.

It is impossible to do this with a shallow bowl, in which there are only about five inches of water at the best of times. Cutting off a couple of inches would leave the cow nothing to drink. The shape of the Beatty Bowl makes it difficult for her to splash, but long, shallow bowls are just the shape to encourage lapping and splashing. In the Beatty Bowl, there is plenty of room for the cow to drink.

Beatty Water Bowls give the cow all the water she wants, when she wants it. They will invariably increase Milk Production enough to pay for themselves.

The Beatty Bowl Is Easy To Clean

The Beatty Bowl is the only bowl supplied with a simple means of cleaning. Feed particles and sediment of different kinds will settle in the bottom of any bowl, making it necessary to clean the bowl from time to time. To remove this from the Beatty Bowl, you have only to pull out the small rubber plug in the bottom of the bowl and the accumulations can be washed out. See Fig. 354, page 196.

Supplied With Valve in Bottom

The Beatty Water Bowl, (shown on page 196,) has an aluminum check valve with brass valve seat. The light aluminum valve permits the water to flow into the bowl freely, but directly there is any backward action, the valve prevents the water from running from the bowl back into the pipes.

This prevents particles of feed and sediment from getting back into the pipes and clogging them. On account of the valve, there is no danger of disease germs getting from one bowl to the other through the pipe line.

Most water bowls have no valve in the bottom and when a cow starts to drink, the water in the bowls immediately near her lowers, causing a back-flow of water into the pipe.

A strainer fits closely around the valve and valve seat of the Beatty Bowl. This protects the aluminum valve and keeps it in place. As the valve seat is brass and the valve aluminum, they will not corrode, so that the valve is always in working order.

How Beatty Water Bowls Are Furnished

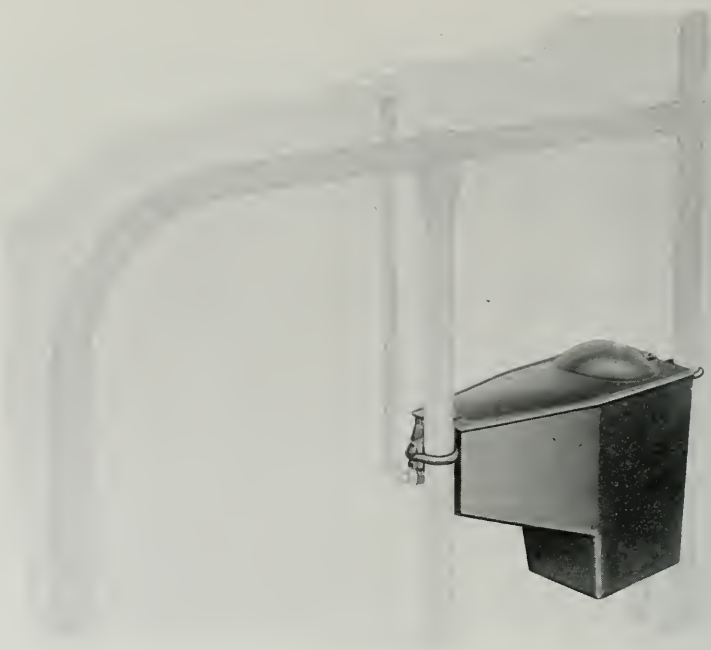
The Beatty Bowl has an attractive appearance. It is used with, and looks well on, either steel or wood stalls.

Beatty Water Bowls are furnished with clips for attaching to steel stalls. When used on wood stalls, we will send bolts for attaching the bowls if we are told the size of the material to which the bowls are to be attached. If we do not know this, we send 3-inch lag screws.

The Beatty Bowl is made of grey iron. It is supplied finished in two ways, viz., painted with heavy asphaltum paint, or hot galvanized.

Bottom of bowl is tapped for ¾-inch pipe, and has a long, well-tapered thread to insure a tight joint. All Beatty Water Bowls have right hand threads.

For further information on the subject of installing Beatty Water Bowl Outfits, see page 203.



Beatty Regulating Tank—Fig. 1345
Attached to Beatty Finished End

Beatty Regulating Tank—Fig. 1346
With Adjustable Stand

Beatty Regulating Tanks

The Beatty Water Bowl, shown on page 196, is designed for use with the gravity system of supplying water. The level of the water in the bowls is regulated by a Regulating Tank, as shown on the opposite page.

The water may be supplied to the regulating tank in a variety of ways, as follows: It may be fed from an overhead supply tank, as shown on page 202. It may be fed from a pressure tank by a hydro-pneumatic water system, as shown on bottom half of page 215. Or it may be fed from a city water main; or by gravity from a spring, hill or by an hydraulic ram.

These different methods of supply naturally develop different pressures. To accommodate these different pressures, Beatty Regulating Tanks are supplied with two different inlets.

The Low Pressure Tank is fitted with an inlet valve having a 5/8-in. centre bore, and is intended for pressures up to 20 pounds. In the High Pressure Tank, the inlet valve is 3/8-in. and is made to stand pressures up to 75 pounds. The tank in either case is the same in principle and in construction, the only variation being the difference of the opening in the inlet valve.

How Regulating Tank Is Used

By one means or another, as outlined above, the water is fed into the regulating tank, through the inlet valve which is made according to the pressure that it is called upon to stand. The water bowls are placed on a level with this regulating tank, and it controls the level of the water in the bowls. One regulating tank should be used for every 14 bowls, and in any case, not more than twenty. Full details regarding proper sizes of pipe, heights of bowls and tank, and other installation particulars, are given on page 203.

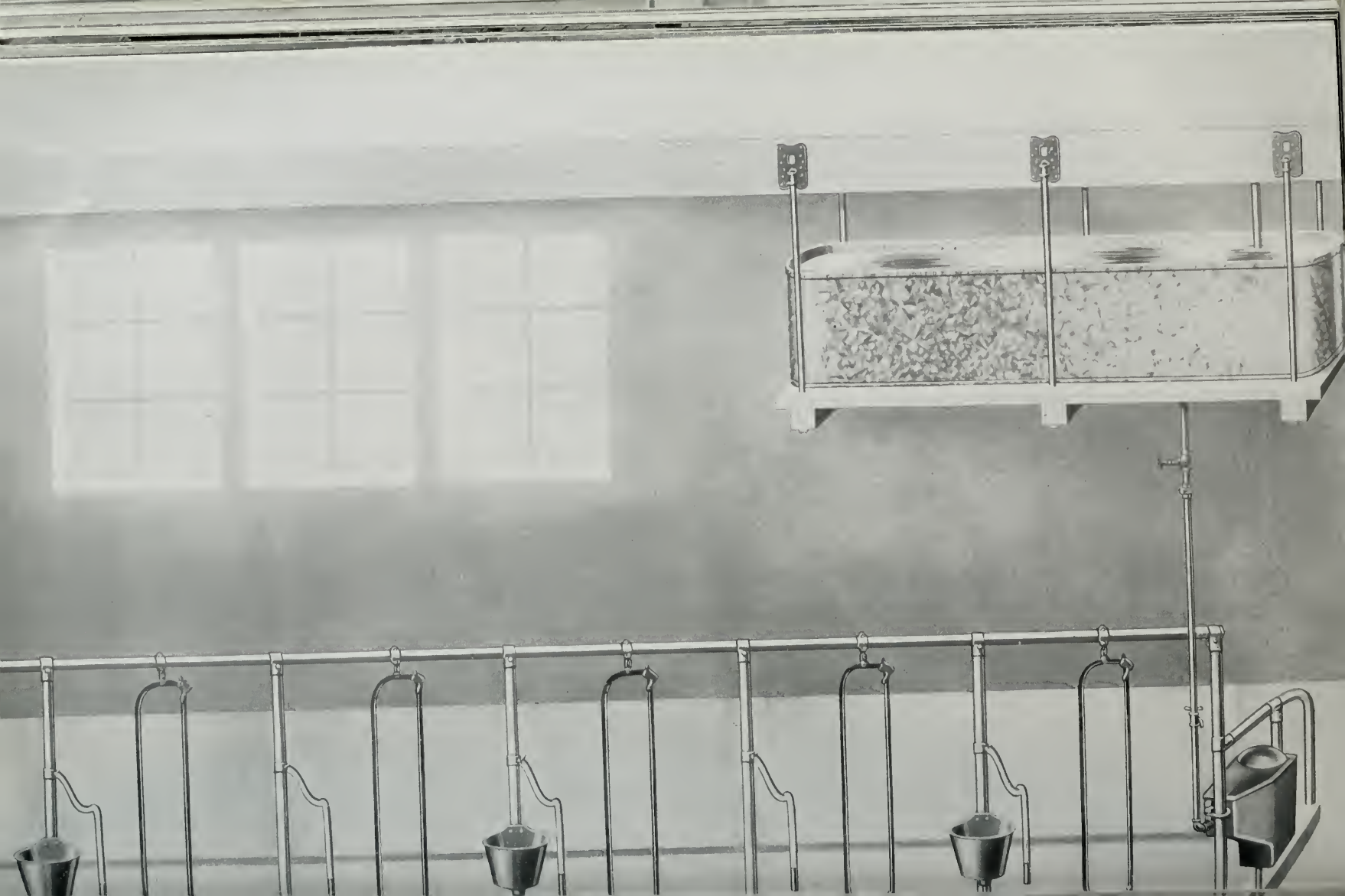
Construction of Beatty Regulating Tank

The Beatty Regulating Tank is made of grey iron. All intake fittings and the rod connecting the float to the valve are brass. The float itself is copper. Extreme inside dimensions are as follows:—18-ins. long; 8-ins. wide and 12½-ins. deep. It is fitted for ¾-in. inlet and 1¼-in. outlet pipes.

It is supplied with or without stand, as shown on the opposite page. Generally, the tank is attached to a finished end, as shown in the top illustration. We send it with the necessary clips for attaching it in this manner unless separate stand is ordered.

The stand, as shown in the lower illustration on the opposite page, is supplied at a small extra charge.

Specify the stand, when ordering, if you require this, and state whether tank itself has to be used with high or low pressure. (Above or below 20 pounds. If your regulating tank is fed from a storage tank on the barn floor, calculate the pressure by allowing two feet of drop, or head, for every pound of pressure. A drop of ten feet from storage tank to regulating tank would thus equal five pounds of pressure.)



Installation Particulars for Beatty Water Bowl Outfits

The illustration on the opposite page gives a general idea of the method of installing a water bowl outfit, when Beatty Water Bowls are used. Some further directions are given below.

Height of Water Bowls—Start by marking on the fronts of the stalls, with a straight edge and level, the height of the bowls. The distance between the **bottom** of the manger and the **highest point** on the water bowls should be 25 inches. This measurement is taken from the manger at the high end. If the manger has a slope of 2-ins. for drainage the upright pipes feeding the bowls will be 2-ins. longer at the low end than at the high end.

Main Pipe Line—We recommend the use of 1¼-in. pipe for the main pipe running from the regulating tank, but on small jobs, it is often possible to use 1-in. Allow one tank to every 14 bowls, and in any case, not more than 20 bowls.

When the bowls are being installed at the time when the floors are being concreted, the following is the method we recommend for laying the main feed pipe:—When laying the concrete for the manger, lay a 2" x 4" piece of timber in the bottom of the manger next to the curb, to make a recess in the bottom of the manger for the pipe. Prepare the pipe line, with tees in places where the bowls will have to be attached.

Cutting the Pipe—Place a tee at each stall post where bowl is to be attached and measure from inside the collar on one tee to inside the collar on the next tee. This gives the exact length to cut the main feed pipe and allows enough thread at both ends to make connections with the tees. For the upright pipes, hold a bowl at the right height, as indicated above, then mark level of bottom of bowl on the stall post. Measure from this mark to the inside of the collar on the tee, and add ½-inch to allow for thread in the bowl.

Putting On the Bowls—Screw the leads into the tees and screw on the bowls, then drop the pipe into the recess left for it in the cement. Fill in around the pipe with sand and cover over with about ¼-inch of cement, leaving the tops of the tees just showing above the cement. By this means, it is always easy to remove one bowl, or, if necessary, chip off the cement and get at the pipe itself. At the same time, the pipe is under the cement, where feed cannot collect around it and get sour. If the cement is already in, the next best place for the main feed pipe is the bottom of the manger. All Beatty Bowls have right hand threads. Do not put the aluminum valves in the bowls until the water has filtered through into the bowls. This permits the air in the pipes to escape and allows a free flow of water.

Connect the Regulating Tank—Place regulating tank at the end of the main pipe in a convenient place, preferably near to the water supply, and connect it to the main pipe line. The top of the Regulating Tank, Fig. 518, should be the same height as the top of the bowls (25" from the bottom of the manger). This leaves about two inches of bowl above the top of the water in the case of the Beatty Bowl.

Installing Pipe Fittings—In all cases, put a plug in the end of each pipe line. The entire pipe line can then be flushed and drained at any time. Use unions in the following places:—

1. A union, and also a brass stop cock, should be used between the regulating tank and the storage tank.

2. A union in the upright pipe connecting the bottom of the regulating tank and the main pipe line.

3. A union should be placed on each branch pipe line, between the main pipe line and the first bowl.

The use of unions makes it easy to disconnect the pipe at any time. The stop cock is indispensable when it is desired to shut off the water supply.

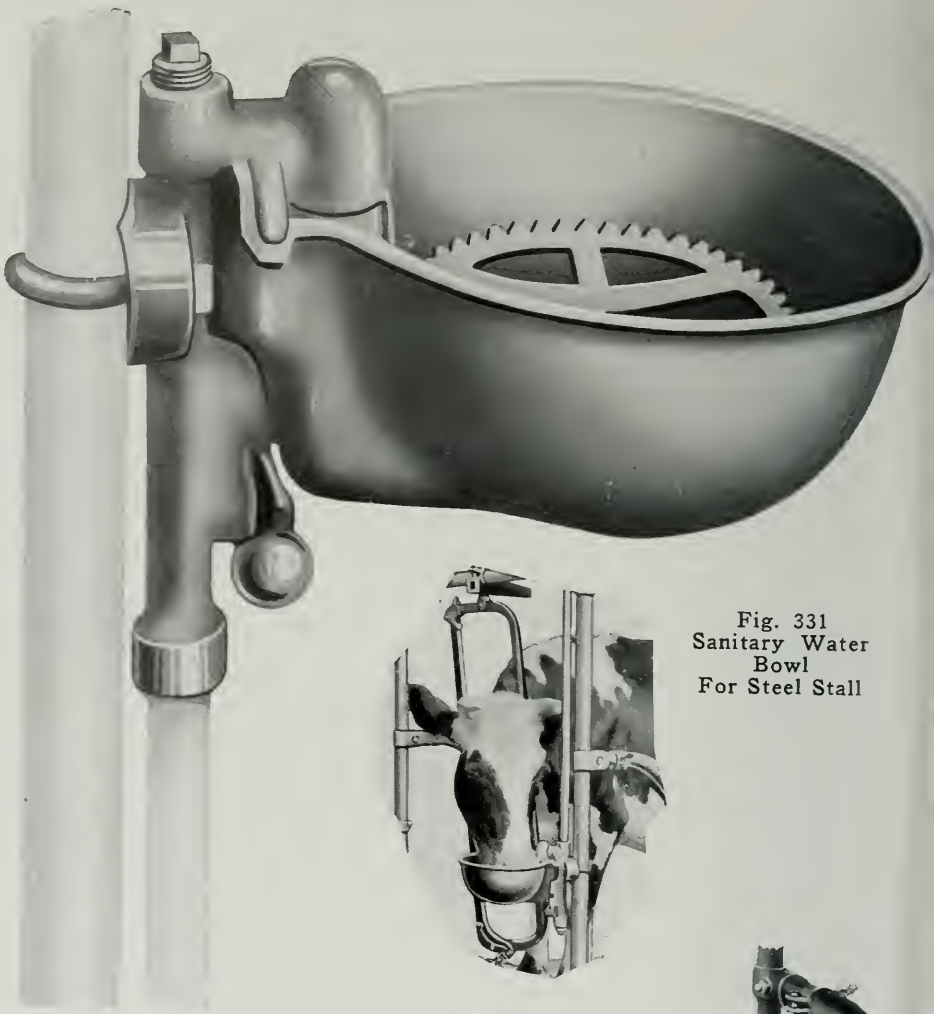


Fig. 331
Sanitary Water
Bowl
For Steel Stall

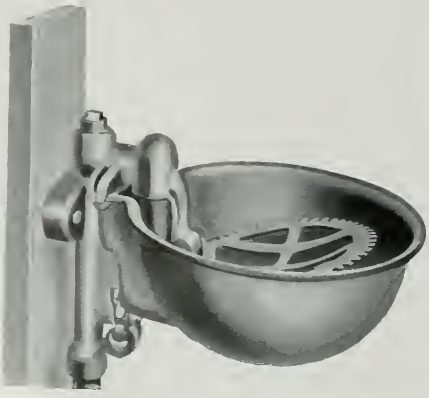


Fig. 331 Sanitary Water Bowl
Attached to Wood Stall

Fig. 338 With clamps necessary where it is desired to attach Bowls to steel stalls in any position except straight in front of partition

The Sanitary Water Bowl

The Beatty "Sanitary" Water Bowl is the ideal bowl to use where floors are uneven, or where obstructions would hinder the installation of the gravity system. No regulating tank is needed with the Sanitary Bowl; therefore, the bowls can be placed at any convenient height, to suit the animals or the conditions. There is no need to have a row of bowls level. The pipe feeding the bowls can come from either the top or the bottom. If it is desired to give each cow an individual water bowl, the Sanitary is more compact, convenient and efficient than any other.

The cow operates the bowl by pressing down on the saw-toothed disc, (see cross section on page 206,) which opens the valve and lets the water flow into the bowl. As soon as she has finished drinking, and the pressure of her muzzle is removed from the saw-toothed disc, the valve automatically closes.

The disc makes it impossible for cows to splash water out of this bowl. Another great advantage of this type of bowl is that the water is always fresh. It comes fresh from the pipes, every time the cow wants to drink; there is not at any time, any water standing in the bowl to get stale.

Strong and Substantial

The Sanitary Bowl is very neat in appearance, well-shaped and rounded. There are no sharp corners. It is a big bowl for a big drink. Working parts are few in number, yet at the same time they are heavy and strong enough to stand lots of hard usage.

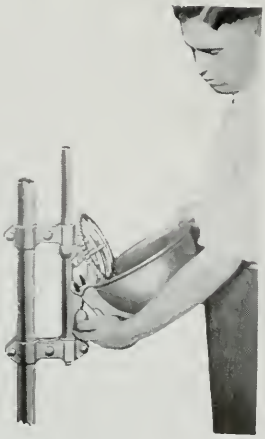
Special attention is directed to the design of the valve seat. This is made on the same principle as the valve seat that has proved so popular and efficient in Beatty Pump Cylinders. It is raised, so as to be self cleaning. The flat rubber valve rests on the raised seat, and there is no chance for dirt or sediment to remain on the valve seat, thus holding the valve open and preventing the water from shutting off. This design is greatly superior to the flat or concave seat with the acorn-shaped valve.

The hinge on which the valve lever works is large and heavy and has wide bearings. There is heavy wear at this point and it is very essential that this part of the bowl be strong. The hinge pin is made of brass, $\frac{3}{8}$-in. in diameter.

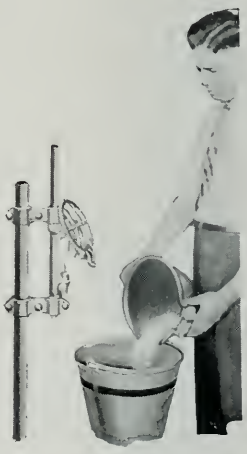
There is enough distance between the bottom of the bowl and the disc to allow the valve to be opened wide. Therefore the cow does not develop the wind-sucking habit, as she has done with other bowls of this type. There is another advantage about having a liberal space between the bottom of the bowl and the disc. After the bowls have been cleaned out, it is possible for a cow to deposit a piece of root or hay so that it works under the disc and prevents the cow from opening the valve. Small, shallow bowls are easily blocked in this manner. If this should happen, the cow may not get water until the bowl is cleaned out again.

The waterways through the valve are large—allowing a quick inflow of water.

Cross Section of Beatty Sanitary Water Bowl
Showing Construction of Valve



The Sanitary Bowl is very easily removed for Cleaning, and yet it is impossible for the cow to loosen it



In a few seconds the Sanitary Bowl can be taken off, emptied out, washed and disinfected.

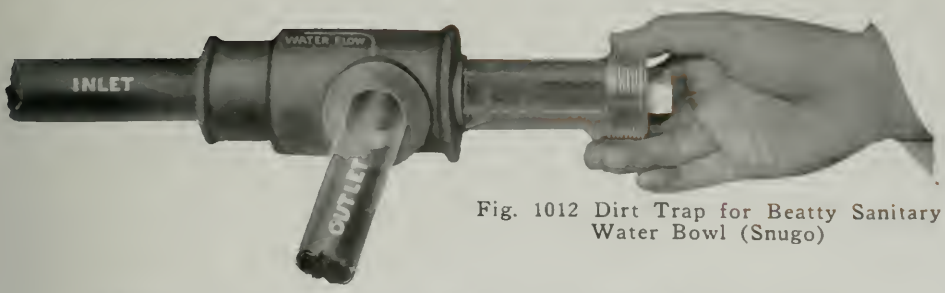


Fig. 1012 Dirt Trap for Beatty Sanitary Water Bowl (Snugo)

How Sanitary Water Bowls Are Furnished

Sanitary Water Bowls are furnished with different clamps and other attachments to suit both steel and wood stalls, as shown on page 204. Where individual bowls are to be used, specify Fig. 338 Bowl with two clamps. In other cases, specify Fig. 331, with clamp for steel or lag screws or bolts for wood, as required. A special hinge is supplied so that the Sanitary Water Bowl can be used with Beatty Lifting Manger Divisions.

Easy to Clean

This bowl gets the name "Sanitary" from the fact that it is so easy to remove and clean. As shown on the opposite page, the whole bowl can be lifted off, washed out thoroughly, disinfected if required and replaced in a few minutes. It is very easily detached; only three operations are required. At the same time it is entirely safe so far as the cow is concerned. It is impossible for her to loosen the bowl. To do so, she would have to lift the valve lever and, at the same time, operate the cam tightener which secures the bowl to the valve casting.

This bowl is also sanitary because it is impossible for water to get back out of one bowl into the common supply, and thus spread disease through the herd.

Some Installation Particulars

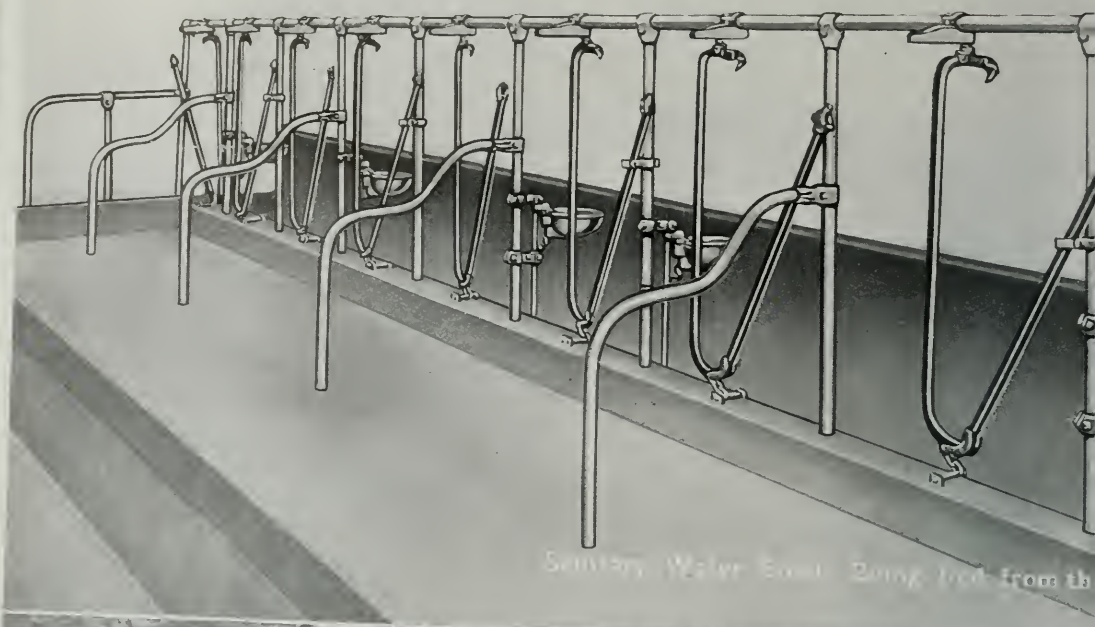
The storage tank should be at least six feet above the bowls. For low pressure jobs, use 1-in. pipe for the main. If there are not more than 15 bowls in a row and the pressure is good, it is safe to use $\frac{3}{4}$-in. pipe for both feed and leads. If there are between 15 and 30 bowls in a row, pipe should not be less than 1-in. If there are over 30 in a row, it should be $1\frac{1}{4}$-in. In all cases, leads are $\frac{3}{4}$-in.

Always use a dirt trap, Fig. 1012. Put this in the feed pipe next to the tank to catch any dirt. Provide stop cock between the dirt trap and the tank, so that the water can be shut off when it is desired to clean out the dirt trap. See that dirt trap is so placed that screen may be easily removed.

If stable is cold enough to freeze pipes, feed bowls from below and drain pipes on cold nights. If the pressure is very high and you get "water-hammer" or vibration, you can reduce this by using a pressure-reducing valve. Keep storage tank covered and see that water supply is clean. Dirt, or particles of galvanizing, etc., off the pipes will give much more trouble with this bowl than with the gravity system.

Specification—Sanitary Water Bowl

Made of cast iron. Finished in black asphaltum paint or hot galvanized. Size, $10\frac{1}{2}$ ins. in diameter and 5-ins. deep, overall. Weight, 17 lbs. Valve parts and spring are made of brass. Valve is deep and made of soft rubber. No regulating tank needed. Can be fed from either top or bottom. Tapped for $\frac{3}{4}$-in. pipe. Supplied for either steel or wood stalls. Can be used as an individual bowl, or for two cows. Works on a pressure of 3 lbs. to 70 lbs. Dirt Trap, which should form part of every outfit, is made of iron with brass screen and brass plug, carefully machined.



Sanitary Water Bowl Swing Fed from th

Sanitary Water Bowl Swing Fed from the

Beatty Steel Storage Tanks

(For illustrations and specifications, see pages 210-211)

Unless water is supplied under pressure, a storage tank is needed with every water bowl outfit. It can also be used for other purposes, such as storing soft water for kitchen and bathroom or as a stock watering trough outside in the pasture.

One of the best arrangements for a gravity system water bowl outfit is to suspend a Fig. 449 Round End Galvanized Tank from the ceiling and pipe from it to regulating tank, as shown on page 202. This can be conveniently placed over a calf pen, where head room is not so essential. In this position the warmth of the stable will prevent the tank from freezing.

A Round Tank, Fig. 490, page 210, can be satisfactorily placed in the mow. The hay packed around it protects it from frost. Sometimes a box is built around it and a hole cut in the floor, so that the warm air from the stable can get up and around the tank. Always see that the tank has a good cover to keep out dirt.

Note particularly the illustrations on page 210 showing how the sides and bottom of the Beatty Steel Tanks are joined. Special lock seams are formed on a powerful bending brake. The seams are then carefully soldered. As shown in the illustration, the greater the pressure of the water in the tank, the tighter the joint becomes. This form of joint is leak proof and far more durable than riveted seams.

Beatty Round Wood Storage Tanks

(For illustrations and specifications, see pages 210-211)

The sides and bottom of Beatty Wood Tanks are made of carefully selected Douglas Fir,, which is 2-in. stock before being dressed. Sides are tongued and grooved and staves are tapered by machinery to suit the circumference of the tank.

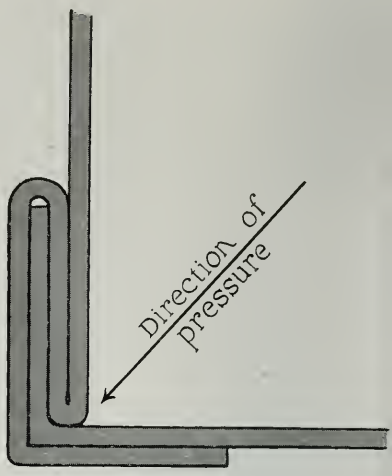
The machine that does the grooving also tapers the staves, so that the tongue and groove suit the taper. This makes the tank less liable to leak and stiffens and strengthens it. This is an exclusive feature of Beatty Tanks.

Beatty Wood Tanks have round steel rods instead of flat bands. They are made of $\frac{1}{2}$-in. or $\frac{5}{8}$-in. steel, according to size of tank. Round rods last far longer than flat bands. They possess a far greater body of material, and at the same time have much less surface exposed to the wet tank. The rods are secured by lugs and can be tightened if the tank should dry out. Flat bands cannot be tightened. Beatty Wood Tanks are painted on the outside with a good paint, which preserves the wood.

Water Required by Different Kinds of Stock

In estimating the size of tank needed, allow from 15 to 20 gallons of water per day for each cow. A horse will require about six gallons, a calf from $1\frac{1}{2}$ to $2\frac{1}{2}$ gallons, a pig about $\frac{3}{4}$-gallon. There are ten pounds of water in an Imperial gallon. Get a tank large enough to supply all the stock, especially the dairy cows, with plenty of water. There is no better investment. A number of different pumping problems, with diagrams showing different methods of supplying water to house and barn, are dealt with and illustrated on pages 212 to 221.

Fig. 490
Beatty Round Galvanized Steel Tank



Showing that the greater the Pressure the tighter the joint

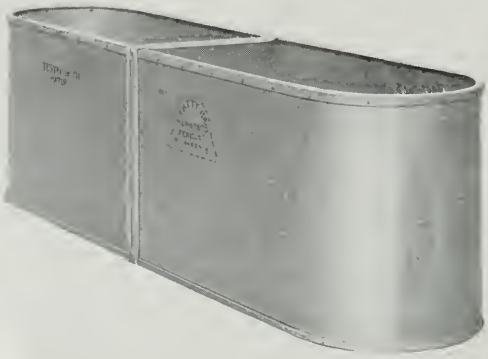


Fig. 449
Beatty Round End Galvanized Steel Tank

Beatty Wood Tank—Fig. 492

SPECIFICATIONS

Beatty Steel Tanks—Figs. 449 and 490

Sides and Bottom—Made of 20 gauge galvanized steel. They will be made of No. 18 gauge at an extra charge of 30 per cent.

Seams—The famous Beatty Lock Seam is used on all Beatty Steel Tanks. See illustrations on opposite page. Joint is then soldered.

Supports and Trusses—Round End Steel Tanks, Fig. 449 are supported by 2-in. by ¼-in. channel iron, one or more being used on a side, according to length of tank. These are connected across the bottom by 1½-in. x ⅛-in. band iron.

Tops of all tanks are encircled by 1-in. x 1-in. x 3/16-in. angle iron. These are turned in and riveted to the sides at close intervals. In this manner the tank is strengthened and stiffened so that it will not bulge out of shape. Tops of all tanks are spanned by one or more 1-in. x1-in.x⅛-in. angle iron braces.

Round steel tanks, if more than three feet, high are built in two vertical sections, the upper and lower being joined by a double lock seam, soldered and riveted.

Galvanizing—All trusses, supports and angle irons are galvanized, and only tinned rivets are used.

Testing—We test all Beatty Tanks with water before they leave the Factory. Owing to the possibility of injury in transit, however, we cannot guarantee that they will arrive in good condition. Test with water before signing freight receipt, if possible, and in any case test it before setting it up in the stable.

Wood Tanks will be shipped knocked down if desired. Shipped this way they take a lower freight rate.

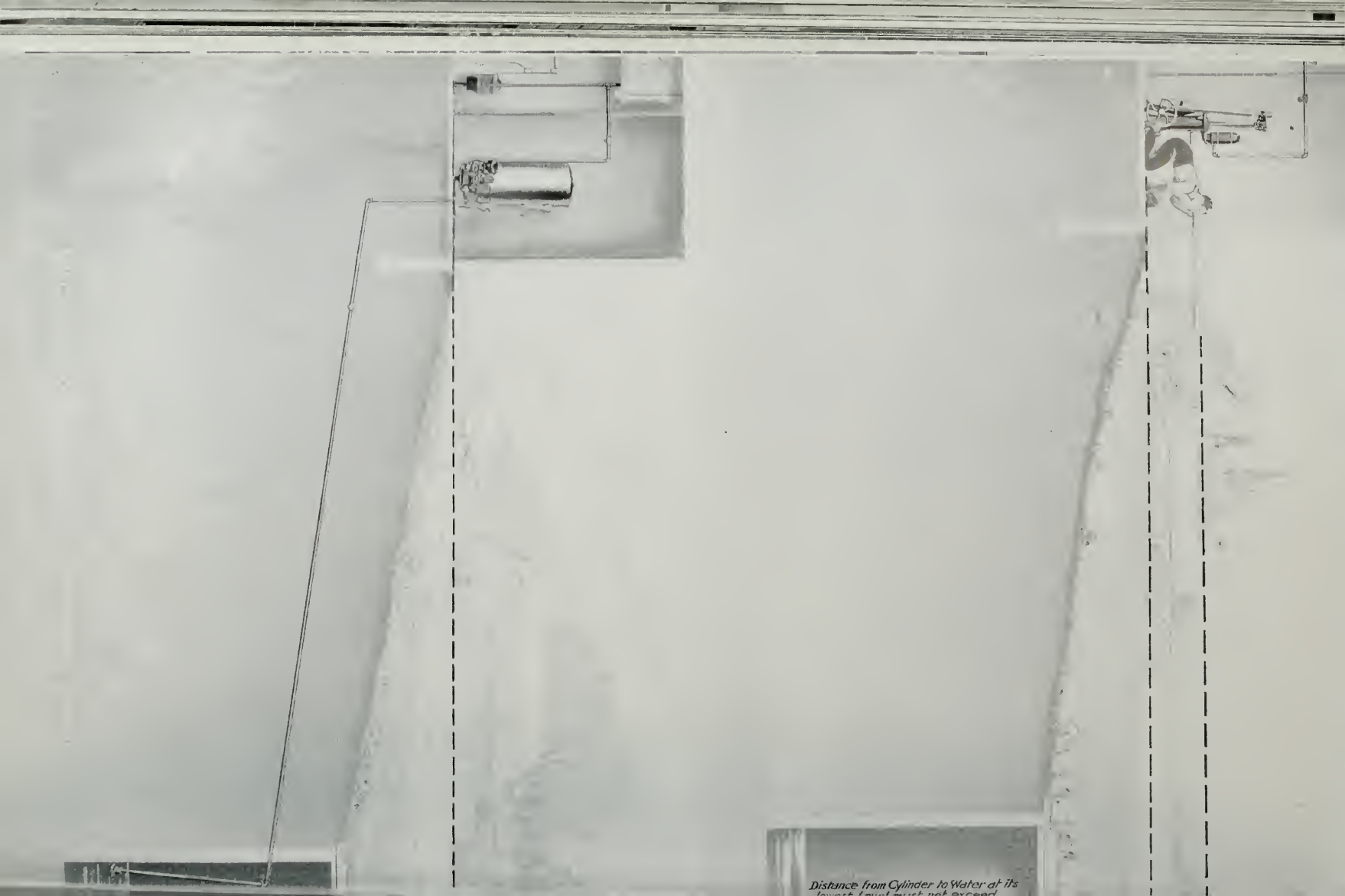
SIZES AND CAPACITIES. BEATTY STEEL TANKS

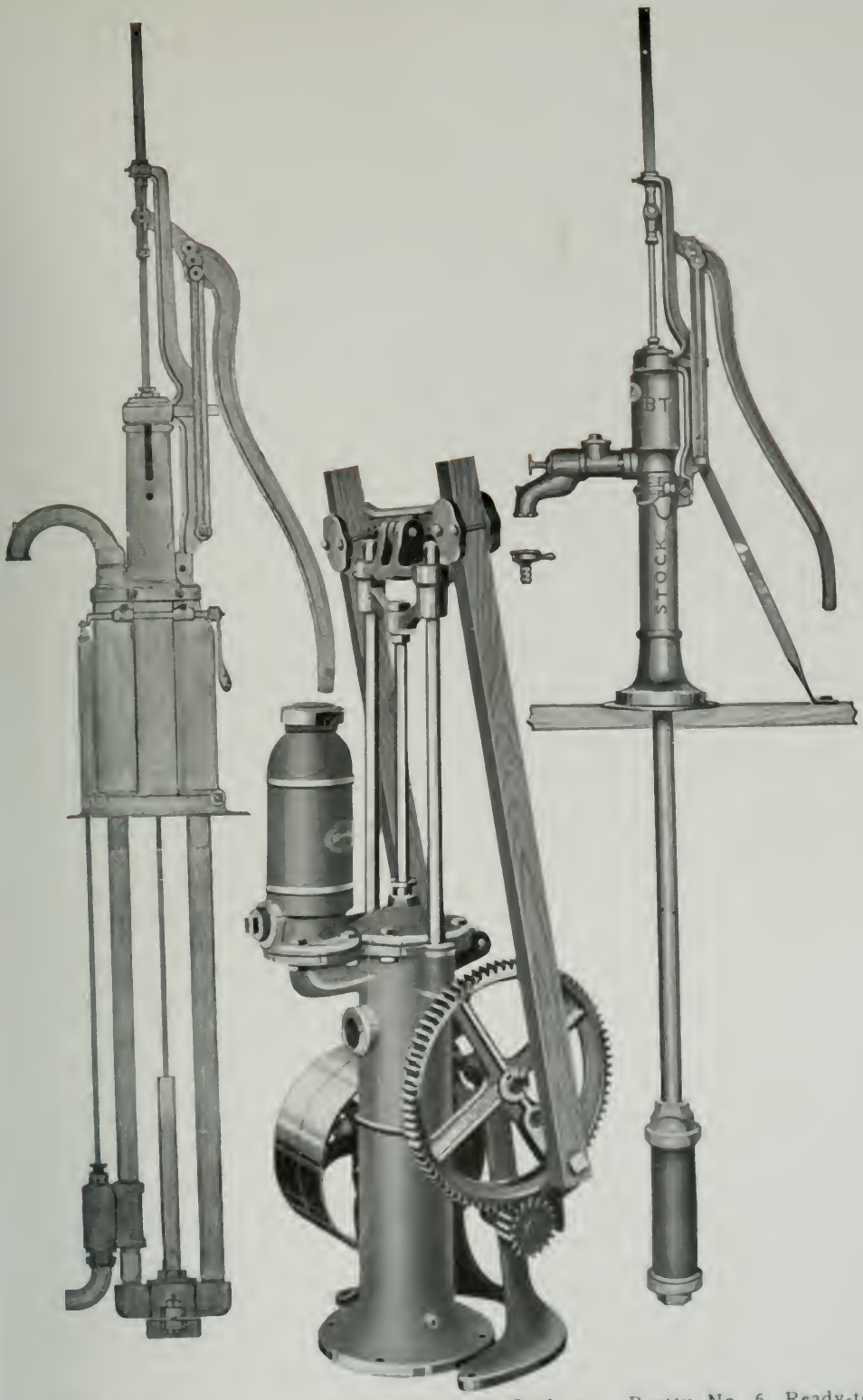
Kind of Tank	Fig. No.	Length Feet	Width Feet	Height Feet	Actual Capacity	Working Capacity	Weight Pounds
Round End	449	4	2	2	78	72	74
" "	449	6	2	2	122	112	95
" "	449	8	2½	2	206	190	141
" "	449	10	3	2	317	285	185
		Diameter, feet					
Round	490	4		4	297	285	145
"	490	4		5	372	360	163
"	490	5		5	587	570	211
"	490	5		6	695	675	240

Capacities are given in Imperial Gallons. There are ten pounds of water to an Imperial Gallon.

SIZES AND CAPACITIES, BEATTY WOOD TANKS, Fig. 492

Diameter at Bottom. Feet	Length of Staves. Feet	No. of Hoops	Capacity Imperial Gallons	Shipping Weight Pounds
4	4	4	242	330
4	5	4	308	380
5	5	4	533	530
5	6	4	640	620

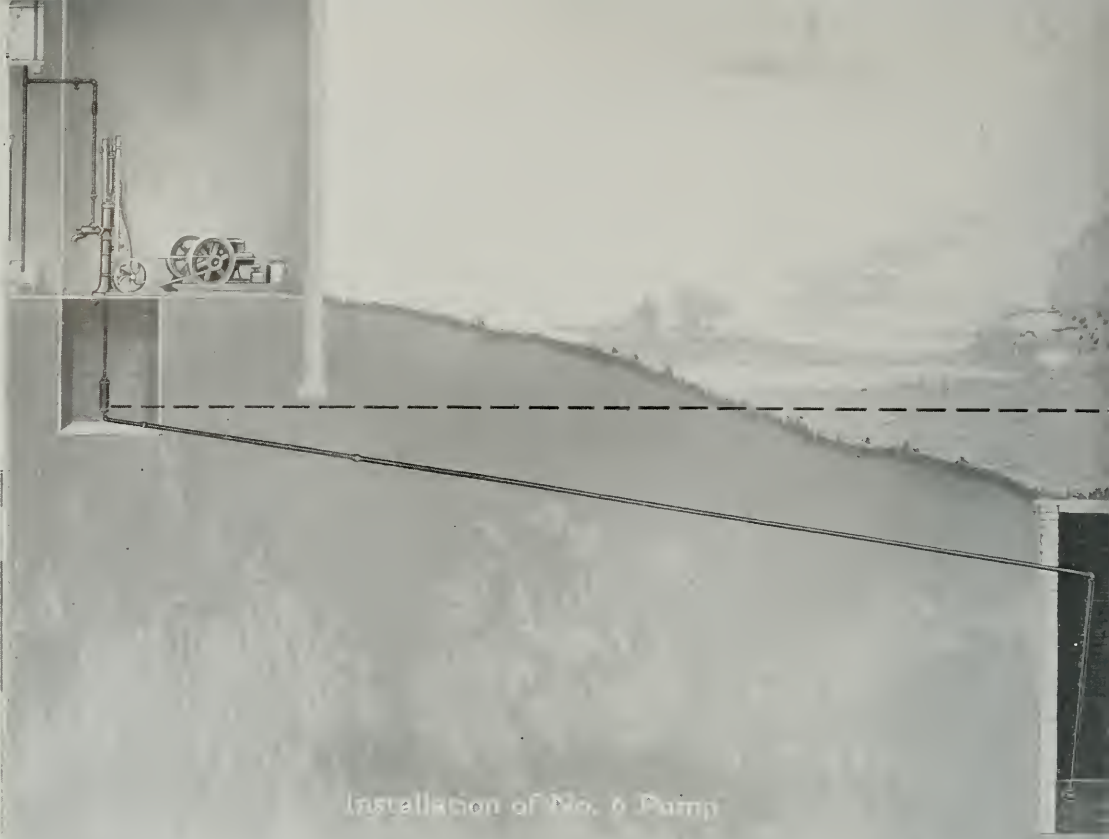

Distance from Cylinder to Water at its



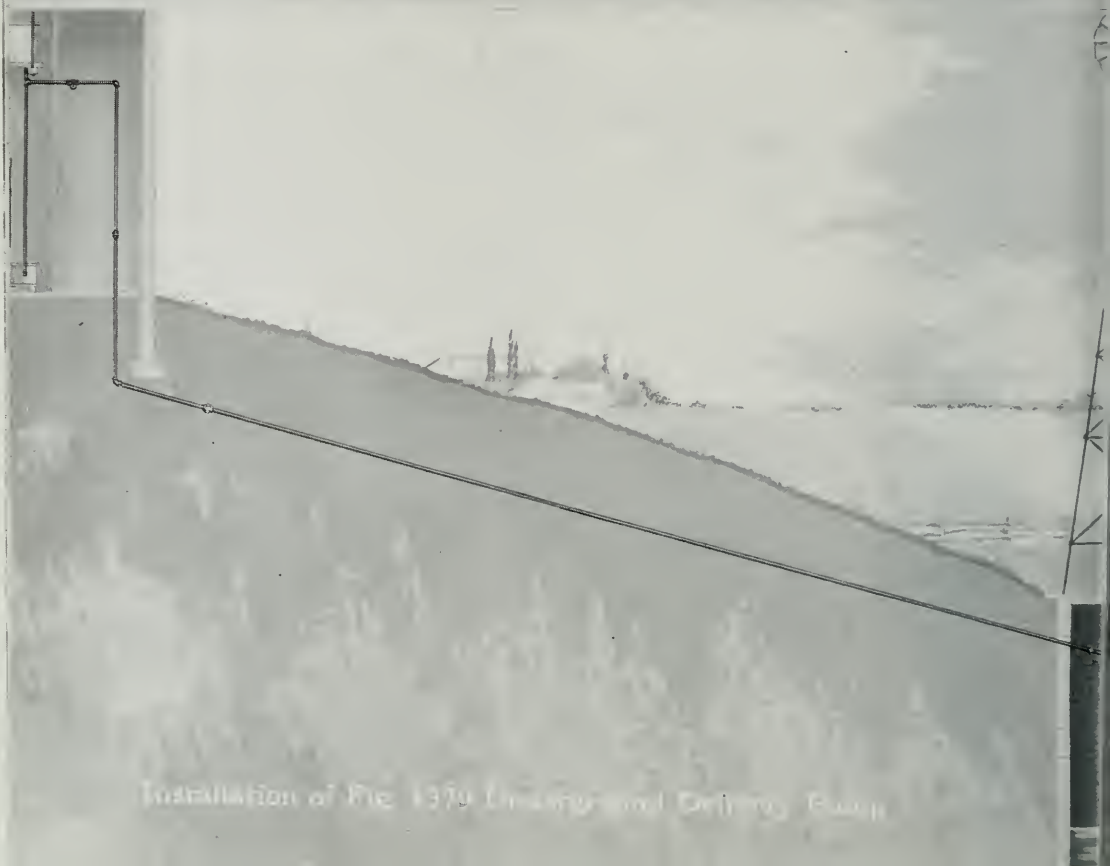
Beatty No. 1379 Underground Delivery Pump Standard

Beatty Fig. 1151 Syphon Pump with Fig. 1343 Beatty Major Pump Jack

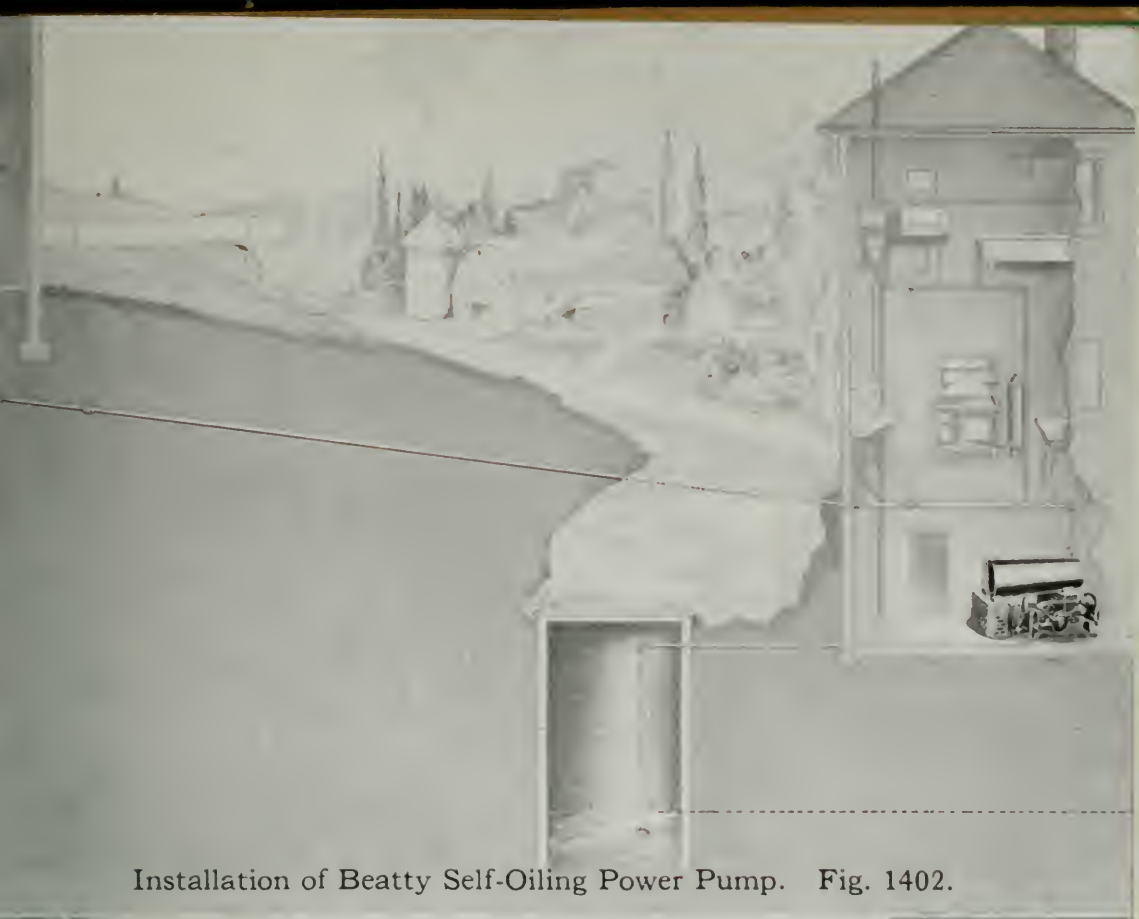
Beatty No. 6 Ready-to-ship Pump, with 3 x 14 in. brass lined cylinder



Installation of No. 6 Pump



Installation of No. 1379 Drainage and Sanitary Pump



Installation of Beatty Self-Oiling Power Pump. Fig. 1402.

Installation of Beatty Deep Well Working Head. Fig. 1421

Beatty Pneumatic
Water Pressure
System

Beatty Pneumatic Water Pressure Systems

TABLE OF CAPACITIES, WEIGHTS, DIMENSIONS AND MEASUREMENTS

Figure Number	Size of Motor H.P.	Capacity of pump per hour Imp. Gals.	Capacity of Tank Imp. Gals.	Speed of Pump R.P.M.	Suction Inches	Discharge Inches	Height Inches	Width Inches	Length Inches	Bore and Stroke, Inches	Shipping Weight lbs.	Code Word
1411	1/6	166	35	220	3/4	1/2	53	25	28	1 1/4 x 1 1/2	230	Kaid
1412	1/6	166	68	220	3/4	1/2	65	29	32	1 1/4 x 1 1/2	310	Kelly

Note that capacities given above are in Imperial Gallons. If Wine Measure, or U.S. Standard Gallons are taken as the unit of measurement, (as is often the case with outfits of this nature,) the capacity of the pumps will be 200 gallons per hour, and the capacity of the tanks 42 and 82 gallons respectively.

City Conveniences on the Farm, in House and Barn

There is probably no other convenience so greatly appreciated on the farm as that of running water. Nothing will do more to improve the health of the family and add to their comfort and happiness than an automatic water supply.

The system shown on the opposite page will supply water under pressure to bathroom, kitchen, cellar and barn. It will also supply water through a hose outside for washing off the car or buggy and watering the garden.

This system, capacities and dimensions of which appear above, is designed to run by electric power off any type of current, direct, alternating or farm lighting plants. It is entirely automatic. It starts itself and stops itself. When the pressure drops to 20 lbs. the switch operates automatically and starts the pump. As soon as the pressure reaches 40 lbs. the pump automatically stops. The whole pump works so quietly that you cannot hear it in the next room. It needs no attention of any kind, except an occasional inspection to make sure that the oil reservoir is full. We supply the whole outfit complete, with motor, pump, tank, gauges, automatic switch and all fittings, ready to be connected up to the pipe line. Additional specifications are given on page 218. See also illustration of pump in use on the bottom half of page 212.

Other Beatty Pneumatic Water Pressure Systems

The many advantages obtained by the use of Beatty Water Pressure Systems are not restricted, however, to those farms where there is some form of electric power. Other Beatty Pressure Pumps, to work with gasoline engine, are shown on pages 219-221. We also supply an excellent pump to work by hand, our Ratchet Handle Horizontal Force Pump, Fig. 1410, which is not shown in this catalogue, which is also used in connection with a pressure tank.

It should be remembered, when buying a pressure outfit for gas engine or hand power that the pressure tank must be considerably larger than that shown on the opposite page and those listed above. These outfits will not start themselves. It is necessary for some one to start the engine going or pump the tank full by hand. This being the case, it is necessary to have a tank which will handle the needs of the family and stock for at least a day. In the case of the electric outfit, the pump may start and stop itself four or five times a day, but as it does this without needing any attention, it is safe to use a comparatively small tank.

A pressure pump should not work more than four or five times a day. It is the starting and stopping that wear the pump, not the steady pumping. Get a tank, therefore, that is large enough to hold at least one fifth of the day's requirements. See further information on this point under "Sizes to Specify" on the next page.

Additional Specifications, Electric Water Pressure System

The Pneumatic Water Pressure System shown on page 216 consists of the following parts:—

Fig. 1394 (Knag) Pneumatic Electric Pump, complete with automatic switch. This may also be had without the switch, for filling an overhead tank, in which case, the power must be shut off by hand. Specify Fig. 1395, (Knee) for pump without switch.

Fig. 1396 (Kneel) 60 cycle or 25 cycle, repulsion-induction motor, as specified. For direct current, specify Fig. 1397 and specify voltage. Fig. 1398, (Kohl) 42 gal. (Wine Measure) electric welded pneumatic tank. If the 82 gal. tank is required, specify Fig. 1400, (Kudos). Fig. 1399, (Kruller) fittings for 42 gal. or 82 gal. tank, including water gauge, pressure gauge and ½-inch globe valve.

Fig. 1418, (Kab) Base for 42-gal. tank and pump. If 82-gal. tank is used specify Fig. 1419, (Knap).

Sizes to Specify—To supply the home with water, for a family of five, we recommend the 42 gallon tank—with the electric outfit. Remember that only about 25% of the capacity of the tank is available for water supply. One third of the capacity of the tank is taken up by air, and the pump starts pumping at 20 lbs., which means that all the water cannot be drawn off before the pump starts. If stock have to be watered, gardens watered and lawns sprinkled, it is necessary to use the 82 gal. tank. Use a tank large enough to supply the needs without calling on the pump to start and stop more than four or five times a day.

What Pump Will Do—The Fig. 1394 Pump used in this outfit must be kept in a frost proof place. It will raise water a vertical distance of 20 feet, and force it to a height of 40 feet. If connections are tight this pump will draw water a large distance horizontally. Owing to friction in the pipes, deduct one foot from the maximum vertical lift for every 100 feet drawn horizontally. Thus, a pump situated 200 feet from the well horizontally, should not be more than 18 feet above the water at its lowest level. Pressure is regularly set for a range of 20 to 40 pounds, as described on page 217. Maximum and minimum pressures also range of pressure, can be adjusted by the owner and varied from the above if desired. This pump will throw a good stream of water through a ½-inch hose with the nozzle open.

The Pump—All gears are eliminated, the mechanism being driven from the motor by a wide, flat belt. It is compactly and sturdily built. Everything is mounted on one base with no protruding parts. This reduces vibration and cuts down the floor space required. Piston rod and stuffing nut are brass. Cylinder is lined with seamless brass tubing. All working parts are made to the closest limits. All valves are easily accessible for inspection. The pump is entirely self-oiling, the splash system being used and a needle float provided to show the amount of oil in the crank case. As a safety device, to prevent any possibility of injury to the motor or pump, a relief valve is supplied with every pump. This works at 65 lbs. pressure, thus insuring that the pump will never be overloaded. A suction strainer in the pump protects it from sediment in the water.

The Tank and Air Valve—The tank is the highest grade, electric welded and hot galvanized, inside and out. There are no rivets to weaken the material. Tested up to 150 lbs. The pump is provided with an air valve by which air is admitted to the tank through the same pipe line as the water. This sometimes needs opening or closing for a day or so to regulate the amount of air in the tank. The tank is marked with a water line, and the best results are obtained when the water comes up to this point with air filling up the top part of the tank. The water gauge shows the exact height of the water, and the pressure gauge shows exactly what pressure the water is under in the tank.

Switch—A reliable and durable switch is most important in an automatic pump of this description. The switch on the Beatty Pump is absolutely positive in action. It has been tested up to 700,000 times, which is equivalent to the use a pump would get in several hundreds of years.

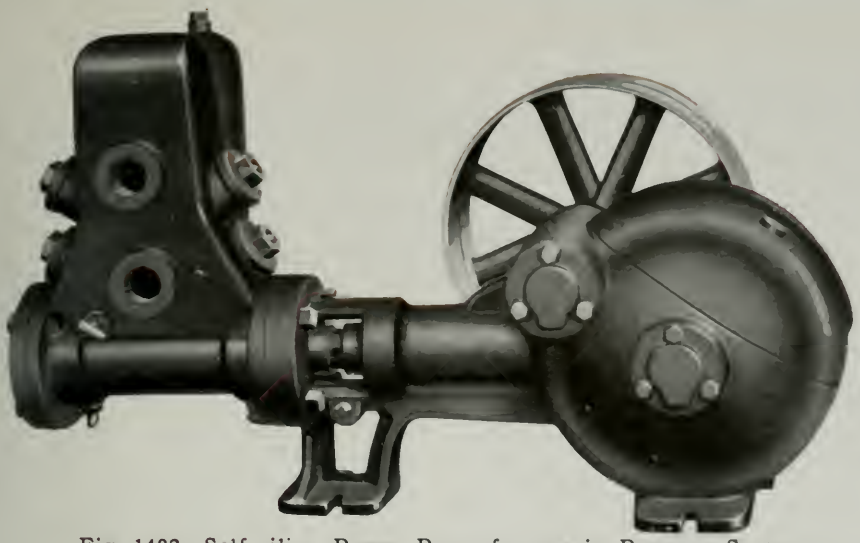


Fig. 1402—Self-oiling Power Pump for use in Pressure System

BEATTY SELF-OILING POWER PUMP FOR USE WITH ELECTRIC MOTOR OR GASOLINE ENGINE

Fig. 1402—For Use with Gasoline Engine

Size No.	Maximum Pressure lbs.	Floor Space Inches	Maximum Horse-power Electric	Maximum H.P. Gas Engine	Bore Inches	Stroke Inches	Disp. each Rev. plunger U.S. Gals.	Usual Plunger Speed R.P.M.	Maximum Plunger Speed R.P.M.	Back Geared	Kind of Pulleys	Size of Pulleys Inches	Suction Pipe Inches	Discharge Pipe Inches	Max. U.S. Gals. pumped per Min.	Weight lbs.	Code Word
1	100	14x31	..	1½	2½	3	.128	60	70	5 to 1	T & L	12x2	1¼	1¼	9	153	Axunge
2	100	18x37	..	3	3	4	.245	60	70	5 to 1	T & L	14x2⅓	1½	1½	17	265	Ayah
3	100	24x46	..	6	4	5	.544	55	65	5 to 1	T & L	16x4	2	2	35	460	Aye
4	100	24x48	..	9	5	5	.85	50	60	5 to 1	T & L	16x4	2½	2½	51	510	Awkward

Fig. 1425—For Use with Electric Motor

1	100	18x46	1	..	2½	3	.128	60	70	5 to 1	Tight	15x2⅓	1¼	1¼	9	170	Meata
2	100	20x57	2	..	3	4	.245	60	70	5 to 1	Tight	20x3	1½	1½	17	300	Meana
3	100	22x72	4	..	4	5	.544	55	65	5 to 1	Tight	24x4	2	2	35	510	Mytha
4	100	22x72	6	..	5	5	.85	50	60	5 to 1	Tight	24x4	2½	2½	51	560	Mumma

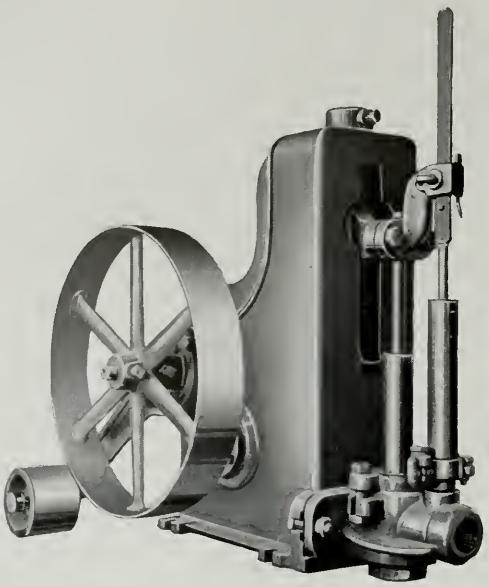
The Beatty Self-Oiling Pump is made for heavy duty all day long if necessary. It is the ideal outfit for a shallow well, where large capacity and freedom from trouble are desired. It is made in two styles—for gas engine and electric motor—and in four sizes, giving a range of capacities from 500 to 4500 gallons per hour. The essential details regarding both outfits are given in the table above. These pumps are entirely self-oiling and self-contained. As shown by the table above, it can be operated at a high rate of speed against a pressure of 100 lbs. or an elevation of 225 feet from the pump. Cylinder is brass lined. Valves are rubber and valve seats are bronze. Suction and discharge valves are easily reached for repair or renewal, without disturbing the pipe line.

This pump is used with a pressure tank in the same way as our Fig. 1394 shown on page 216. The electric outfit can be supplied with a switch to start and stop automatically. The engine-driven outfit, Fig. 1425, must be started by hand, but can be arranged to cut off automatically. Pump must be installed in a frost proof place. Maximum vertical lift, —20 feet. The No. 1 size, Fig. 1402, is supplied so that it can be operated by hand in event of the operator not desiring to start the engine. Specify hand attachment if desired, as pump must be fitted for same. Fig. 1402 is supplied with tight and loose pulleys. Fig. 1425 is usually equipped with a belt tightener.

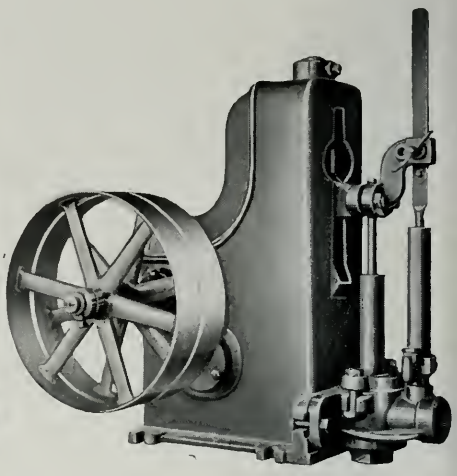
Large Capacity Tanks

We supply tanks of different sizes, as follows, in addition to the 42 and 82 gallon (Wine Measure) tanks already referred to.

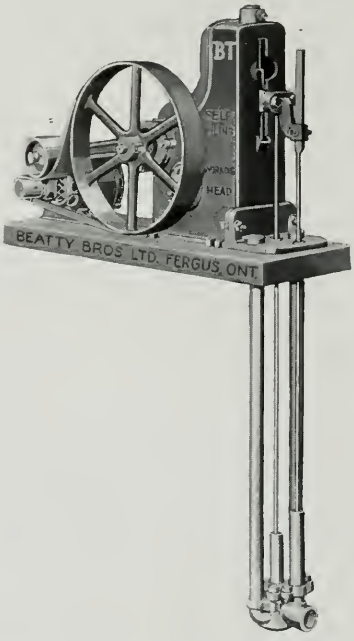
Fig. 1404—315 Gallons, Electric Welded, Hydro Pneumatic Black Tank, 3' x 6' (Aortal).
Fig. 1405—530 Gallons, Electric Welded, 3' x 10' (Aortic)
Fig. 1406—720 Gallons, Electric Welded, 3½' x 10' (Aortitis).
Fig. 1407—120 Gallons, Electro Welded Tank, 2' x 5', Black (Akir); Galvanized (Akelg)
Fig. 1408—220 Gallons, Electro Welded Tank, 2½' x 6', Black (Aby).
Fig. 1409—1000 Gallons, Electro Welded Tank, 3½' x 14', Black (Abyg)



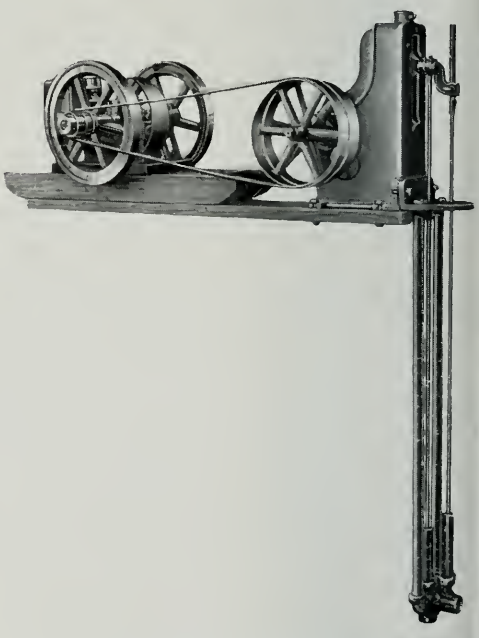
Beatty Self-oiling Deep Well Working Head for Electric Motor—Fig. 1420



Beatty Self-oiling Deep Well Working Head for Gas Engine—Fig. 1424



Beatty Self-oiling Deep Well Working Head for Electric Motor and underground delivery—Fig. 1421



Beatty Self-oiling Deep Well Working Head for Gas Engine and underground delivery—Fig. 1434

Beatty Self-Oiling Deep Well Working Head

FOR USE WITH ELECTRIC MOTOR OR GASOLINE ENGINE

Figs. 1424 and 1434 For Use with Gasoline Engine

Size No.	Maximum Pressure lbs.	Floor Space Inches	Maximum Horse-power Engine	Stroke Inches	Usual Plunger Speed R.P.M.	Maximum Plunger Speed R.P.M.	Back Geared	Kind of Pulleys	Size of Pulleys Inches	Tapped for Suction Inches	Tapped for Discharge Inches	Shipping Weight		Code Word	
												Fig. 1424	Fig. 1434	Fig 1424	Fig 1434
1	60	17x24	2	6	42	44	7 to 1	T & L	12x2	$2\frac{1}{2}$	$1\frac{1}{4}$	148	170	Krags	Keats
2	80	21x29	6	9	33	40	7 to 1	T & L	16x3	3	2	335	375	Kiffa	Kiped
3	80	27x37	8	12	33	35	7 to 1	T & L	20x4	4	3	545	620	Koppa	Kiplg

Figs. 1420 and 1421 For Use with Electric Motor

Size No.	Maximum Pressure lbs.	Floor Space Inches	Maximum Horse-power Motor	Stroke Inches	Usual Plunger Speed R.P.M.	Maximum Plunger Speed R.P.M.	Back Geared	Kind of Pulleys	Size of Pulleys Inches	Tapped for Suction Inches	Tapped for Discharge Inches	Shipping Weight		Code Word	
												Fig. 1420	Fig. 1421	Fig. 1420	Fig. 1421
1	60	17x24	1	6	42	44	7 to 1	Tight	$15x2\frac{1}{2}$	$2\frac{1}{2}$	$1\frac{1}{4}$	165	185	Kant	Kinso
2	80	21x29	4	9	33	40	7 to 1	Tight	30x3	3	2	413	445	Kopee	Kopal
3	80	27x37	6	12	33	35	7 to 1	Tight	30x4	4	3	640	715	Kopek	Kopur

On pages 216-219 we have illustrated two styles of shallow well pumps, well adapted to the purpose of supplying water to house and barn. Both these, however, must be installed in a frost proof place, and cannot be used in wells where the distance between the water, at its lowest level, and the pump exceeds 20 feet.

The working heads illustrated on the opposite page are intended for use in deep wells. A separate cylinder is coupled on below the working head at sufficient depth to bring it within the 20-ft. limit. These are made for either gasoline engine or electric motor, and in two styles, namely, with discharge above ground and discharge below ground. Both styles are illustrated on the opposite page. There are three different sizes, having strokes varying from 6 to 12 inches, with corresponding variation in capacities.

These pumps are used in connection with a pressure tank, as shown at the top of this page. They are entirely self-oiling, and strongly made in every way. They are intended for hour after hour of steady work without attention. The gas engine outfit can also be coupled up to a switch and made to stop automatically, but must be started by hand. When this outfit is used with a farm lighting plant, use hand control starting switch, as the automatic starting switch draws too heavily on the battery at starting.

The essential data regarding this pump will be found in the table at the top of this page. The capacity of the outfit will vary, of course, according to the size of cylinder used with it. See also illustration on page 215, bottom half, where the method of using this working head to supply water to house and barn is demonstrated.

Beatty Horse Stalls pay for themselves

Anyone may be proud of a Horse Stable fitted with Beatty Equipment

Horse Stable of J. J. Joubert Ltee.,
rue St. André, Montreal.

Horse Stable of J. J. Joubert Ltee.,
rue St. André, Montreal.

Interior Horse Barn, Percy Lasby, Moose Jaw, Sask.

Ventilating Partitions in Horse Stable of Walker Sons, Limited, Walkerville

Barn of James Dunsmuir, Esq.,
Hatley Park, Victoria, B. C.

Barn of Geo. Thompson
Orangeville, Ont.

Beatty Steel Horse Stable Fittings

The most profitable horses, the horses worth keeping, are good horses. Horses have hard work to do and should always be kept in good condition to do their work. Good horses command good prices.

A well-fitted, bright, sanitary, comfortable stable has much to do with the successful rearing and keeping of good healthy horses. Good horsemen know that horses will respond as readily to comfortable surroundings and proper care as to correct feeding. Steel horse stable fittings make the stable bright and comfortable and make it possible to give the horses the care they should have in the minimum time.

A Stable You Will be Proud of

Steel horse stable fittings make a beautiful stable and always appeal to the farmer who prides himself on his animals and is anxious to have them look their very best. The open construction of the steel guards allows the sunshine to flood through the building. Every horse in the row gets abundance of fresh air and sunshine and every one of them will be shown off to the best advantage. The owner is proud to take a visitor or buyer into his stable. He will always be proud of the stable if he uses Beatty Steel Horse Stable Fittings, because they are indestructible. The horses cannot crib the guards and mangers. No amount of battering will injure the steel horse stall posts. Steel fittings will not rot and they always look well. Many horsemen have stated that they made the cost of their steel fittings many times over because they were enabled by them to sell their horses to better advantage.

A Well-Ventilated, Comfortable Stable

The air gets every opportunity to circulate through the open horse stall guards. If the horse stall partitions are built with spaces between the planks, the air gets a chance to circulate through the partitions also. When the horses are brought into the stable for feeding at noon, after a hard forenoon's work, they are hot and tired. Old wood stables are dark, close and stuffy and in Summer the horses sweat more in such stables than they do outside. They are often brought out after dinner covered with sweat. Certainly, they have not been comfortable, nor have they rested, during the noon hour. The eyesight of the horses has often been injured by bringing them out from the old dark stable into the bright sunlight. It pays to open up the dark wood stable with steel guards, and let the sunshine flood in: Harness, also, lasts longer in a well-ventilated stable.

Steel mangers, hay racks, oat bowls and swinging fronts save time in feeding and prevent the horses from wasting their feed.

Beatty Horse Stable Fittings are simple in design and strongly made. They can be installed quickly and easily by the farmer. They save the expense of hiring high-priced carpenters to build the stalls. Steel equipment lessens the fire risks. The posts, guards, mangers and hay racks are all fire proof.

A glance through this book will give an idea of the neat, substantial appearance of barns equipped with Beatty Fittings. Our fittings are made almost entirely of steel and malleable, instead of the clumsy cast-metal parts found on some makes of equipment, which are so easily broken.

Beatty Steel Horse Stable Fittings will give the owner a horse stable in keeping with the attractive and sanitary steel cow stable equipment.

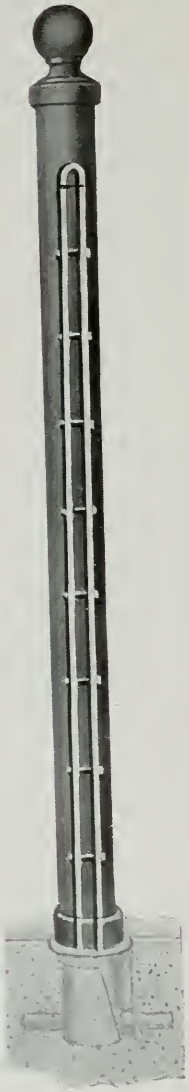


Fig. 717 BT Steel Horse Stall Post 5 ft. 6 ins. (Stroll)

Fig. 718 BT Steel Stall Post, 6 ft. 6 ins., for Fig. 551 Guard (Salit)

Fig. 719—BT Steel Horse Stall Post 7 ft. 6 ins. for Fig. 552 Guard (Salem)

Anchor used on BT Horse Stall Posts for cement floor

Anchor used on BT Horse Stall Posts for wood floor

Beatty Steel Horse Stall Posts—Fig. 717, 718 and 719

Every horse stable needs at least steel horse stall posts these days, and hundreds are being sold. Good wood posts are hard to get and expensive. They soon rot out with cement floors, because cement is an enemy to wood. They are easily battered up and slivered and after a few years have to be replaced. Since the strength of the partitions depends upon the posts it is important that they be substantial. Beatty Steel Horse Stall Posts will stand the roughest treatment. No amount of kicking and hammering will disfigure them.

Wood posts soon rot out in cement floors. The cement holds the moisture around them and quickly rots them off. Steel never rots, and Beatty Horse Stall Posts are galvanized to prevent rust. Every post is fitted with a floor-line protection ring which keeps the liquids and acids of the urine away from the posts. See illustration above. Between the ring and the post there is a heavy coating of asphalt paint. Architects and engineers are specifying these rings for protection against corrosion.

SPECIFICATIONS

These posts save time in framing the stable as they are furnished with a channel, 4 feet 6 inches in length, to receive a 2-inch dressed plank. The channel is made of heavy steel, with 3/8-in. bolts for bolting to the partition every 6 inches up the channel. This is superior to posts that are grooved to receive the partition, because this method sacrifices the strength of the post and allows moisture to get down and cause corrosion. The height of the partition is 4 feet 6 inches. Beware of cast metal or light flanges commonly used on base posts. They are easily broken or kicked out of place.

Posts are fitted with rings to which ropes can be tied to prevent horses from backing out and treading out the bedding. The horse can also be tied to these rings for cleaning. Neat caps are furnished, riveted to the post. The post is anchored by heavy anchor and anchor bolts, as illustrated. Post is made to go down into the cement 8 inches.

All posts are made of 4-inch outside diameter, full weight, solid welded steel tubing, galvanized and finished in green and gold.

Fig. 717 is 5 feet 6 inches high and made for Fig. 450 Guard, page 237.
Fig. 718 is 6 feet 6 inches high and made for Fig. 551, 8 feet 0 inches Guard, page 230.
Fig. 719 is 7 feet 6 inches high and made for Fig. 552 Box Stall Guard, page 230.
Any of these posts may be had for wood floor by specifying Fig. 543 and mentioning length of post required.

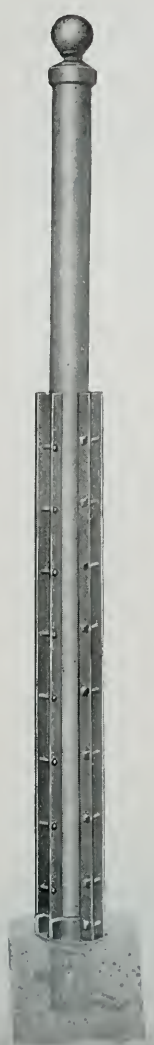


Fig. 548 BT

Fig. 549 BT

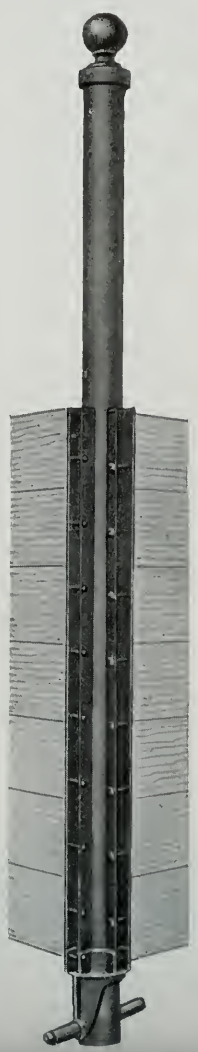


Fig. 550 BT

Fig. 544 BT

Fig. 545 BT

Fig. 546 BT

Fig. 547 BT

Beatty Box Stall Posts—Figs. 548, 549 and 550

These posts are designed to rigidly support the box stall partition and accommodate Fig. 552 Guard, (page 236). They are made of 4-inch outside diameter, full weight, solid welded galvanized steel tubing. The standard length, less cap, is 7 feet 6 inches. They are finished in green and gold and are furnished with ornamental cap also anchor for either concrete or wood floor, the same specifications as Figs. 717, 718 and 719 on pages 232-233.

For a two-way post, two channels are used; for a three-way post, three channels, and for a four-way post, four channels. Channels are steel, and are provided with ⅜-inch bolts to hold 2-inch dressed plank, 4 feet 6 inches high. Weights are as follows:—

Fig. 548, Two-way Post, 14 pounds per foot.
Fig. 549, Three-way Post, 15½ pounds per foot.
Fig. 550, Four-way Post, 17 pounds per foot.

Beatty Supporting Horse Stall Posts—Figs. 544, 545, 546, 547

Steel Supporting Posts add greatly to the appearance of the stable and are in harmony with the rest of the equipment. They take up less space, are better in appearance and stronger. No amount of kicking or battering can injure them, and when concrete filled, they are fireproof. They are very durable, and will last for generations. Steel Supporting Posts are well worth the investment.

Beatty Supporting Horse Stall Posts are galvanized. They are furnished with cast metal floor line protection rings, and between the post and the ring there is a heavy coating of asphalt paint.

They are furnished with heavy 12 gauge steel channels. The channels have ⅜-inch bolts to hold the partition plank. The standard channels are 4 feet 6 inches above the floor and are attached with cap screws. Posts can be channelled any height to accommodate close partitions, any height from floor to ceiling, at a slight extra charge.

The lengths of Beatty Horse Stall Supporting Posts vary with the distance between the floor and the underside of the girder, or beam, to be supported.

The posts are supplied with caps and bases. Specify size of beam to be supported, so that we may know what size of cap and base will be needed, and when ordering, give distance from floor to underside of beam. When concrete footings are being put in for Supporting Horse Stall Posts, the top of the footing should be from 1½-in. to 1⅞-in. below the floor line. This allows for the depth of the base and for that portion of the protection ring which goes below the floor. Filling Beatty Horse Stall Supporting Posts with concrete enables them to carry one-third more weight. Filling the posts with concrete is also an added protection in case of fire. The concrete prevents the column from buckling when hot, and prevents the great mass of the burning building from caving in on the equipment.

Tubing used is 4-inch, outside diameter, full weight, solid welded galvanized steel tubing. Weights are as follows:—

Fig. 544, One-way Supporting Horse Stall Post, weighs 12½ pounds per foot.
Fig. 545, Two-way Supporting Horse Stall Post, weighs 14 pounds per foot.
Fig. 546, Three-way Supporting Horse Stall Post, weighs 15½ pounds per foot.
Fig. 547, Four-way Supporting Horse Stall Post, weighs 17 pounds per foot.

The caps for these supporting posts are made for the following size beams:—
6 inches, 8 inches, 10 inches and 12 inches.

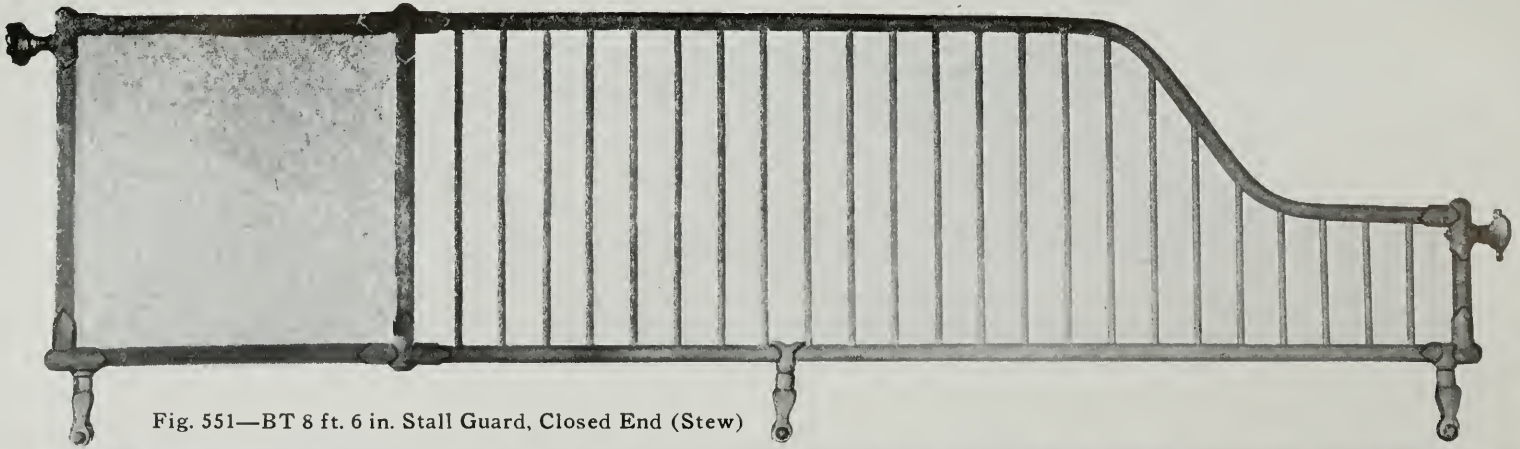


Fig. 551—BT 8 ft. 6 in. Stall Guard, Closed End (Stew)

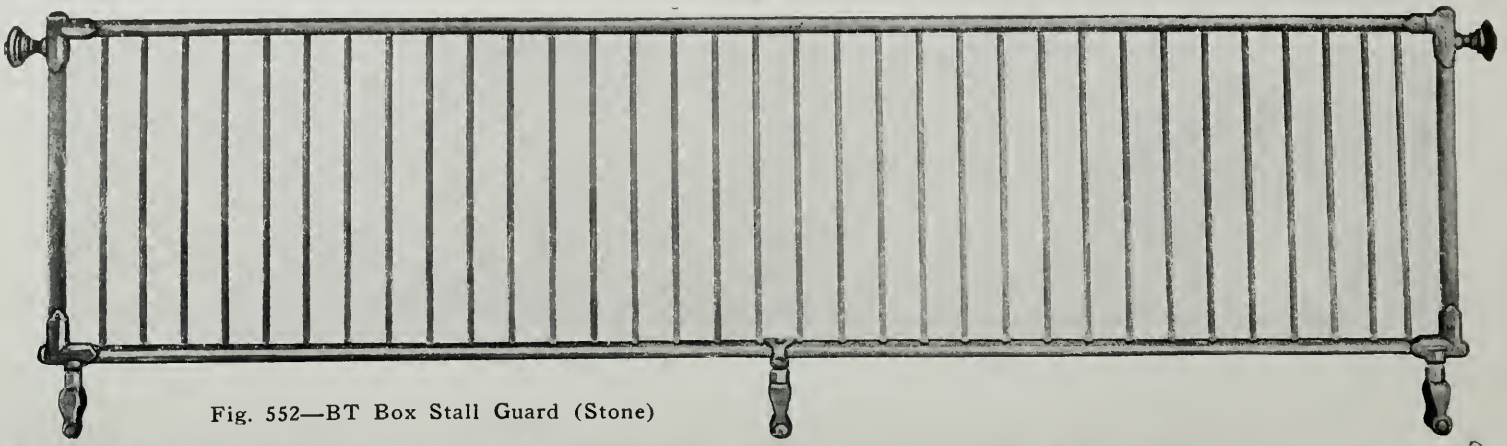


Fig. 552—BT Box Stall Guard (Stone)

Beatty Steel Stall Guards

(Patented)

Beatty Steel Stall Guards make a wonderful improvement in the appearance of the horse stable. Their open construction allows the sunlight to flood the stable. The old style wood partitions and fronts run right up to the ceiling and darken the stable. In these days, when the movement is towards more and larger windows, it is surely foolish to block out the light with solid partitions. The great advantages to be derived from better light and better ventilation account for the ever-increasing sales of Beatty Horse Stall Guards.

Beatty Steel Stall Guards are durable, sanitary, do not harbour dust and dirt and are easily kept clean. The round tubing frames of the guards do not collect dirt like flat surfaces. The main frame of the guard, top, bottom and ends, is made of $1\frac{5}{16}$-inch outside diameter steel tubing. The corners are bound together by malleable iron clamps which are riveted on the tubing. $\frac{9}{16}$-inch steel rods are set on 3-inch centres.

A steel sheet panel is furnished at the head of the tie-up stall guards, Figs. 551 and 450, to prevent the horses from biting at each other.. It is two feet square and is made of 20 gauge material. It is securely fastened by being inserted in the tubing at each end and riveted. Note how the saddles for attaching the guard to the partition come down well over the plank and make a solid connection.

Fig. 450, 6 feet, Tie-Up Stall Guard as above. Height, 2 feet 2 inches. Weight 50 pounds. Finished in green. It is attached to the front of the stall by $\frac{3}{8}$-in. lag screws or bolts, as required, and to the partition planks by $\frac{3}{8}$-in bolts.

Fig. 551, 8 feet 6 inches, Tie-Up Stall Guard, as described above and illustrated on opposite page. Height, 2 feet 2 inches. Weight, 78 pounds. Finished in green. It is attached to the front of the stall by $\frac{3}{8}$-in. lag screws or bolts, as required, and to the partition planks by $\frac{3}{8}$-in. bolts. At the back of the stall, it attaches to a steel post with cap screws or to a wood post with lag screws.

Fig. 552, Box Stall Guard, illustrated on opposite page. Height, 2 feet 2 inches. Weight, 10 pounds per foot. Finished in green. Specify length in ordering, as it is made any length desired. An extra support is provided in the centre of very long guards. Method of attachment is the same as described above for Fig. 551.

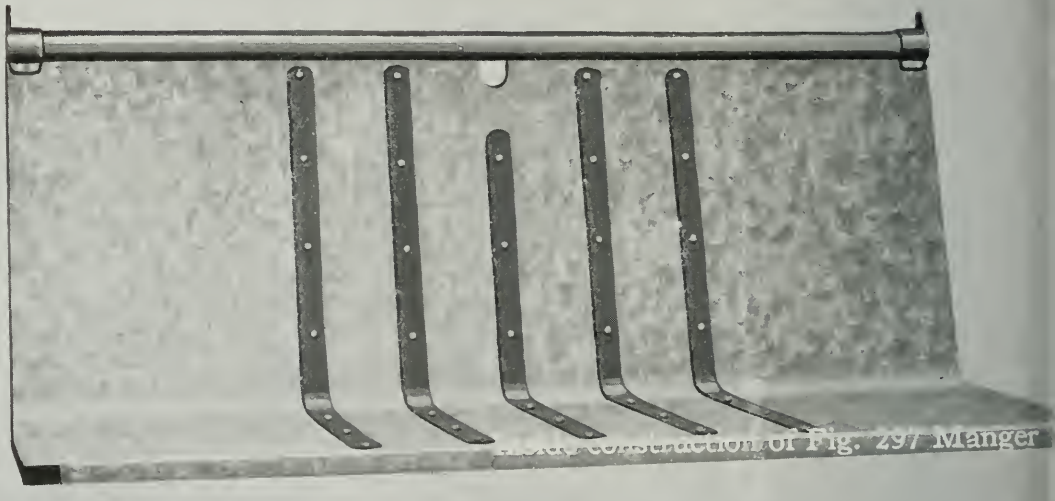
Partition Caps

As an addition to the finish, appearance and strength of the stall partition, Partition Caps can be supplied. These go over the top of the partition, between it and the guard. These caps also protect the partition against being cribbed by the horses.

Beatty Partition Caps run the length of the stall partition and are secured at the front of the stall by $\frac{3}{8}$-in. bolts or lag screws, as the case may be, and to a steel post by the bolt that holds the tie-ring in the steel post. It is attached to a wood post with lag screws.

It is made of heavy U-bar steel, $\frac{1}{8}$-inch in thickness, $1\frac{7}{8}$-inch wide and $2\frac{1}{8}$-inch deep.

BT Closed Manger, Fig. 297



Rear Construction of Fig. 297 Manger

BT Galvanized Box Stall Manger, Fig. 30

Beatty Galvanized Closed Manger with Oat Box—Fig. 297

(Stray)

A well-constructed manger is an economy in the stable. Steel mangers are durable the horses cannot crib them and they retain their appearance for a lifetime. They are easily cleaned and save feed. In the old wood mangers, dust and dirt are often allowed to collect, which will then turn sour and decay, causing a waste of good feed.

The Beatty Closed Manger, Fig. 297, is made of 16 gauge galvanized sheet steel, reinforced in the centre with five straps of ⅛-in. x 1½-inch galvanized flat iron. It is reinforced along the top by 1⅞-inch outside diameter galvanized steel tubing. The other three sides of the steel sheet are reinforced by forming the sheet into a flange on a powerful brake. At the bend in the manger, the ends are further reinforced by a malleable iron casting. There is a hole in the centre for tying the horse reinforced by a malleable iron casting. Flanges at bottom and sides are drilled at intervals of 8 inches for screws.

The Oat Box is flanged so that the horses cannot nose their oats out of the Oat Box and waste them. A horse will waste enough, in this way, to pay for a good manger and oat bowl.

The Beatty All Steel Closed Manger, Fig. 297, is ideal when using cut feed. It will not dry out, leaving big cracks in which food is wasted.

Another great advantage of Beatty Steel Mangers is that they come ready to instal. They can quickly be put in place with very little labor and expense. It requires a skilled carpenter to construct good wood mangers and oat bowls.

The Oat Box supplied with this manger is also made of 16 gauge galvanized sheet steel and furnished with wide flanges to prevent waste of feed. It may be attached to either side of the stall. It is 8 inches deep, 12 inches wide and 20 inches long. See Fig. 589 on page 244.

The Beatty Closed Steel Manger, Fig. 297, is regularly made, 4 feet 10 inches wide for a stall 5 feet wide, centre to centre. It is 24 inches wide at the top, 18 inches wide at the bottom and 21 inches deep. It weighs 60 pounds. This manger will be made in special lengths from 4 feet to 10 feet, if exact dimension is given. Be sure to give exact figures when ordering.

Beatty Galvanized Closed Box Stall Manger with Oat Bowl—Fig. 305

(Sprawl)

The construction of the Box Stall Manger, Fig. 305, is the same as that of Fig. 297, except that in order to suit a box stall it has one closed end made of 16 gauge galvanized sheet steel. The other specifications are the same as those for Fig. 297, given above.

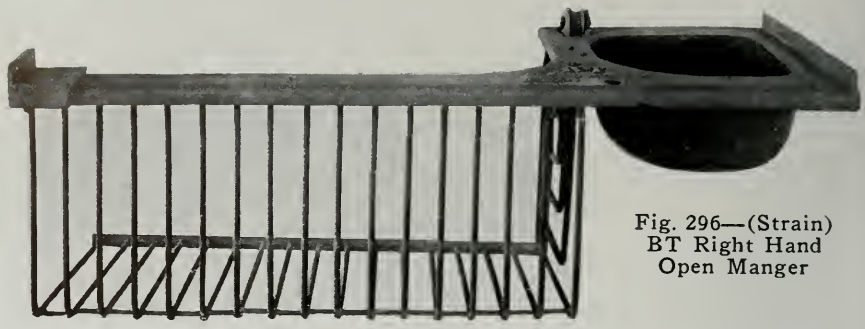


Fig. 296—(Strain)
BT Right Hand
Open Manger

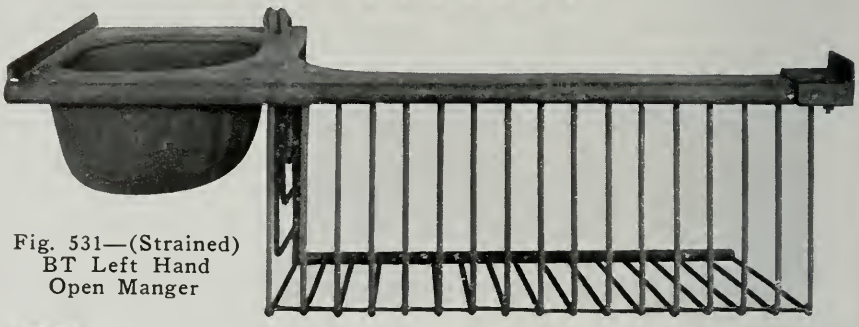


Fig. 531—(Strained)
BT Left Hand
Open Manger

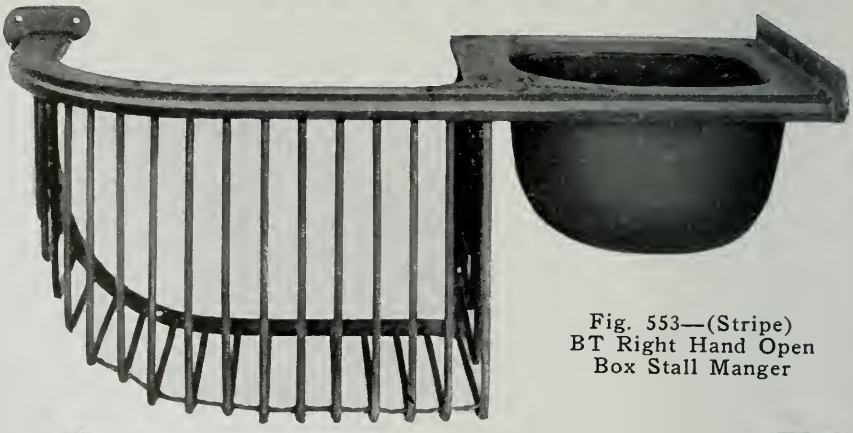


Fig. 553—(Stripe)
BT Right Hand Open
Box Stall Manger

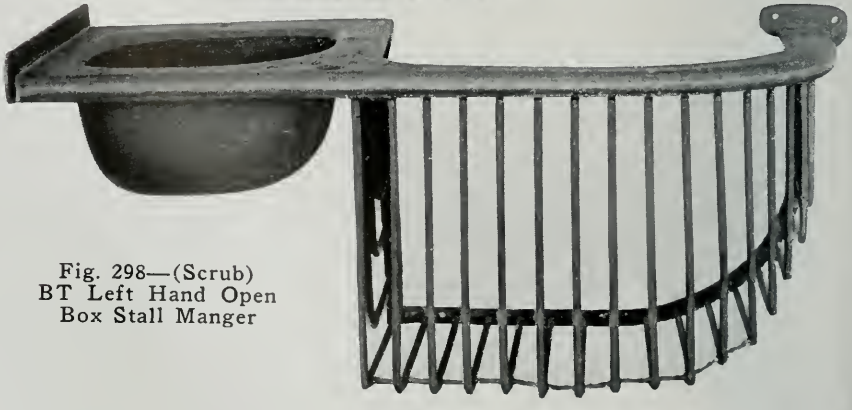


Fig. 298—(Scrub)
BT Left Hand Open
Box Stall Manger

Beatty Right Hand Open Manger—Fig. 296

(Strain)

The feed rack of this manger is made of steel rods, which allow all dust and chaff to escape from the hay, and in this way remove one of the chief causes of heaves. It is self-cleaning. The feed box is well flanged to prevent the horse from nosing the oats out of the box. It is very large, being 15-inch wide and 8-inch deep and made of heavy cast metal. The main frame of the manger is a heavy casting. The oat bowl is bolted to the frame. This type of manger is adjustable. There is a hole in the main frame of the manger for tying the horse and a pulley for the counter-weight type of tie.

The hay rack portion of this manger is made of ½-inch steel rods, shouldered and securely riveted to a 1-inch x ⅜-inch flat steel frame, which is bolted to the main frame with $\frac{5}{16}$-inch machine bolts. The rods are reinforced at the ends with straps to keep them in place.

Rods are very close to prevent waste of hay, being set on 2½-inch centres. The rack is 22-inch wide and 22-inch deep. It has both tie ring and roller, so that a weight may be attached to the halter to take up the slack. Top is grey iron and very heavy and strong. Manger is finished in green and supplied in three lengths.

Dimensions—4-ft. 10-in. adjustable to 5-ft.; weight, 136 lbs.
5-ft. 4-in. adjustable to 5-ft. 6-in; weight, 150 lbs.
5-ft. 6-in. adjustable to 5-ft. 10-in.; weight, 160 lbs.

Beatty Left Hand Open Manger—Fig. 531

(Strained)

Same as Fig. 296, but with oat box on left hand side.

Beatty Right Hand Open Box Stall Manger—Fig. 553

(Stripe)

Construction the same as Fig. 296, except that it is built for a box stall See Fig. 553 on the opposite page. Specifications are same, except for dimensions, which are as follows:—

Made in one size only, 4-ft. long, 22-in. wide, at widest point, and 20-in. deep. Supplied with Oat Bowl 15-in. wide and 8-in. deep. Weight, 114 lbs.

Beatty Left Hand Open Box Stall Manger—Fig. 293

(Scrub)

Construction is the same as Fig. 553, except that oat bowl is on left side.

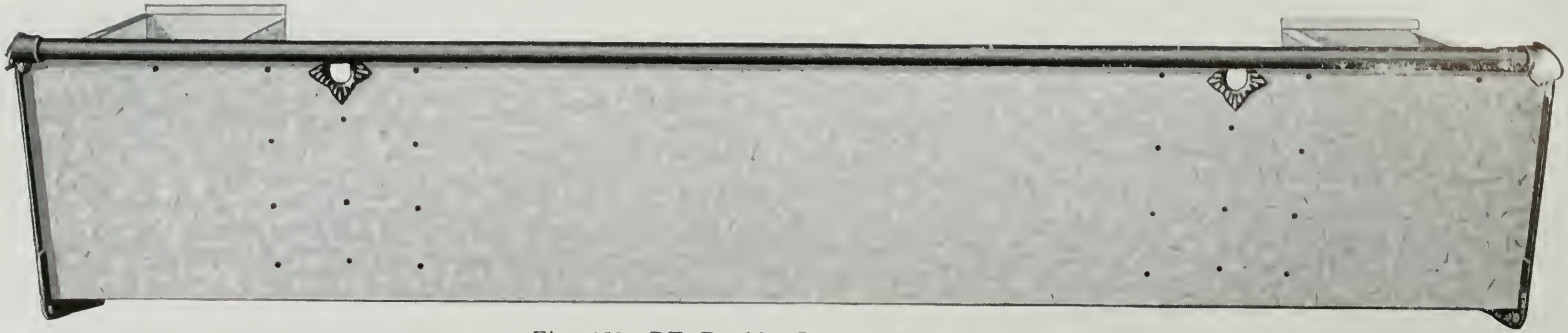


Fig. 453—BT Double Closed Manger (Son)

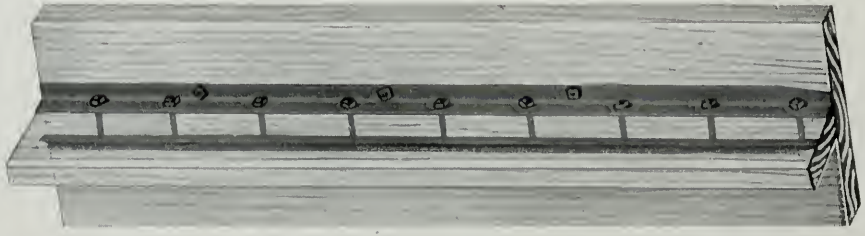
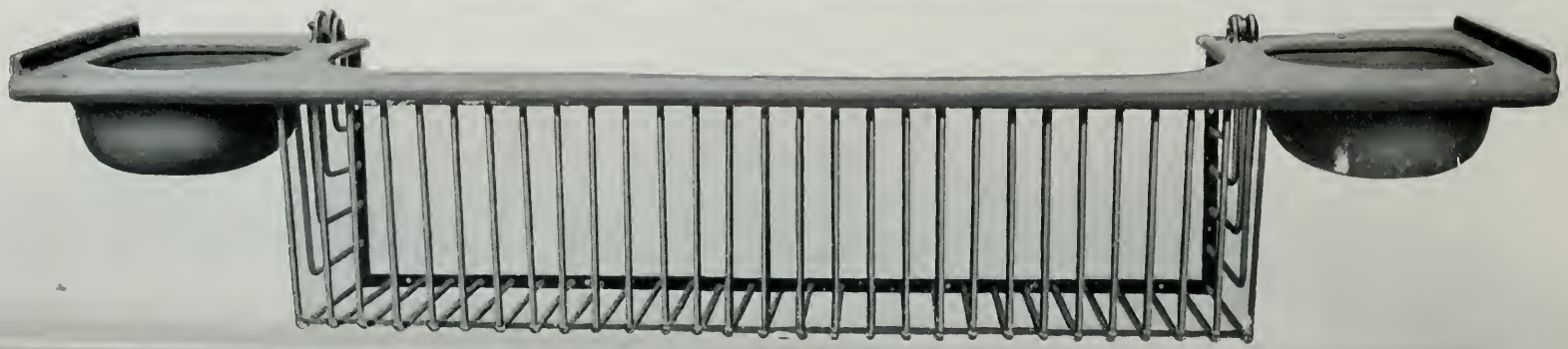


Fig. 559—
BT Partition Strip
(Stagot)



Beatty Double Closed Manger with Two Fig. 589 Oat Boxes—Fig. 453

(Son)

The Beatty Double Closed Manger is similar in construction and has the same specifications as the manger illustrated on page 238, namely The Closed Manger, Fig. 297, but it is intended for a double tie-up stall or box stall.

Manger is made of 16 gauge galvanized sheet steel, reinforced in two places with 3 straps of ⅛-inch x 1½-inch galvanized iron. It is reinforced along the top by a piece of galvanized steel tubing 1⅞-inch ouside diameter, running full length of the manger. The bottom edge and ends are reinforced by forming it into a flange by a powerful brake. These flanges are drilled at intervals of 8 inches. At the end in the manger the ends are further reinforced by a strong malleable iron casting. There is a hole 2 feet from each end for tying the horses reinforced by malleable casting.

Standard length—8 feet. It can be made any length from 8 feet to 12 feet, at a small extra charge. Manger is 24 inches wide at the top, 18 inches wide at the bottom and 21 inches deep. It weighs 10 lbs. per foot.

Beatty Double Open Manger—Fig. 455

(Sing)

The Beatty Double Open Manger is similar in construction and has the same specifications as Fig. 296 manger shown on page 240, but is intended for a double tie-up stall or box stall. There are two feed boxes one at each end, each feed box being bolted to the frame as in Fig. 296.

The Hay Rack is made of ½-inch steel rods, shouldered and securely riveted to a 2-inch x ⅜-inch steel frame which is bolted to the main frame with ⅜-inch machine bolts. At the bends the rods are reinforced with a steel strap which keeps them in place. These are riveted together with 2 rivets between each rod. Rods are set on 2½-inch centres.

There are two tie rings and rollers.

Standard length—8 feet. It can be made in any length from 8 feet to 11 feet at a small extra charge. Manger is 24 inches wide, and 22 inches deep. It weighs about 25 lbs. per foot. It is finished in green.

Beatty Partition Strips—Fig. 559

(Stagot)

The Beatty Steel Partition Strip shown on the opposite page is used to attach the stall partition plank to the front of the stall. It consists of two angle iron strips, each 8-in. x 1½-in. and 4-ft. 6-in. long. The partition strips are bored with holes at intervals of 6-in. to fasten to the wall. They are also bored with holes every 6-in. and supplied with bolts to receive the partition plank, ⅜-in bolts are supplied with the partition strip. Partition strips are finished in green and weigh 20 lbs.

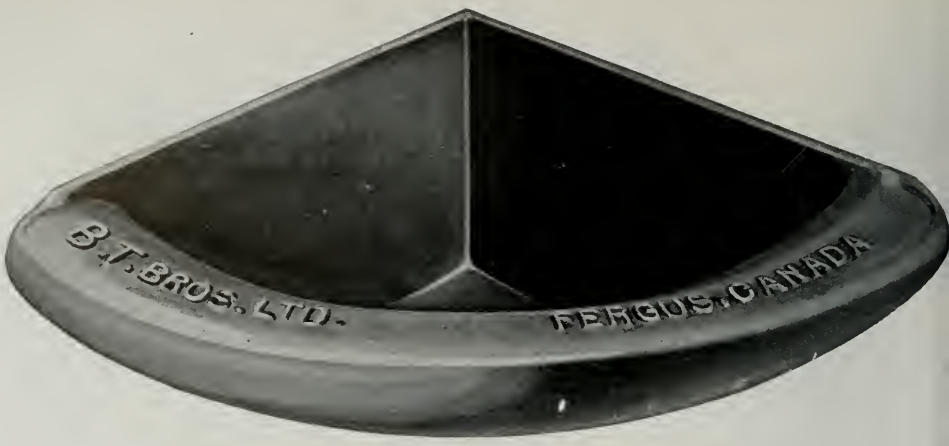


Fig. 334
BT Oat Bowl
(Spray)

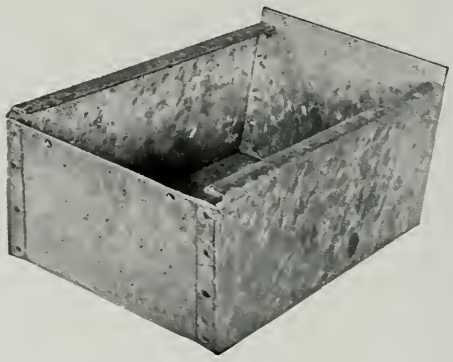


Fig. 589
BT Sheet Steel Oat Box
(Sang)

Fig. 301
BT Oat Bowl with Top Plate
(Stem)

Beatty Oat Bowls

Beatty Oat Bowls are inexpensive and very durable. They will last indefinitely. They cost very little, if any, more than wood oat boxes and soon save their cost in the saving of feed. Hardwoods for making good oat boxes are scarce and expensive carpenter's wages for building and putting them in makes them almost as expensive as metal. Wood oat boxes are soon eaten out by the horses and have to be replaced. They dry and crack and feed is wasted, therefore, metal oat boxes quickly pay for themselves. Hundreds are now in use, even with wood mangers.

Beatty Oat Bowl—Fig. 334
(Spray)

The Beatty Oat Bowl, Fig. 334, is an inexpensive and very substantial feed box. It is made of just one grey iron casting, with a large rolled edge to prevent the feed from being worked out by the horse. The flange is wide and nicely rounded.

SPECIFICATIONS

Sizes—16-in., with 16-in. sides, 9-in. deep, weight 30 lbs.
Two holes are drilled in each side and ⅜-in. lag screws are supplied so that it may be attached to the stall.
Fig. 334 is finished in black asphalt paint.

Beatty Galvanized Sheet Steel Oat Bowl—Fig. 589
(Sang)

The Beatty Galvanized Sheet Steel Oat Bowl is an inexpensive and very substantial feed box. It is made of 16 gauge galvanized steel with wide flanged edges to prevent waste of feed. When the oats are spread over the flat surface and into the corners, the horse is prevented from bolting his feed. This is a great advantage of this type of oat bowl. There are four holes drilled in each side, so that the oat box may be attached to the stall on either side. Fig. 589 measures 12-in. x 22-in. at the top and 12-in. x 20-in. at the bottom. It is 8-in. deep. Weight, 16 lbs.

Beatty Two Piece Oat Bowl—Fig. 301
(Stem)

The Beatty Two Piece Oat Bowl makes a neat corner feed box for use in a box stall and can also be used in tie-up stalls. It consists of two grey iron castings, namely a bowl and a top plate, the two being bolted together. The top overlaps the bowl to form a flange, which prevents waste of feed.

The bowl portion is 15-in. x 15-in. and is 8-in. deep. There is a broad flange, along the top on two sides provided with holes so that the bowl can be secured to the side and front of the stall. This flange measures 18½-in. x 18½-in. Fig. 301 is finished in black asphalt paint.

Barn of Cranes Limited
Montreal, Oue

Fig. 307 BT Corner feed rack for box stalls

Fig. 554 BT Corner feed rack for Tie

Beatty Corner Hay Rack for Box Stalls—Fig. 302

(Shuffle)

The corner Feed Rack, Fig. 302, is designed for use in the corner of the box stall and can be placed as high above the floor as desired. It is usually placed as high as the horse's head. The hay can be thrown down into it through a chute.

The horse must pull the hay from between the rods and in this way is prevented from throwing it out over the floor. The open work of the bottom and the rods allow dust and chaff to escape.

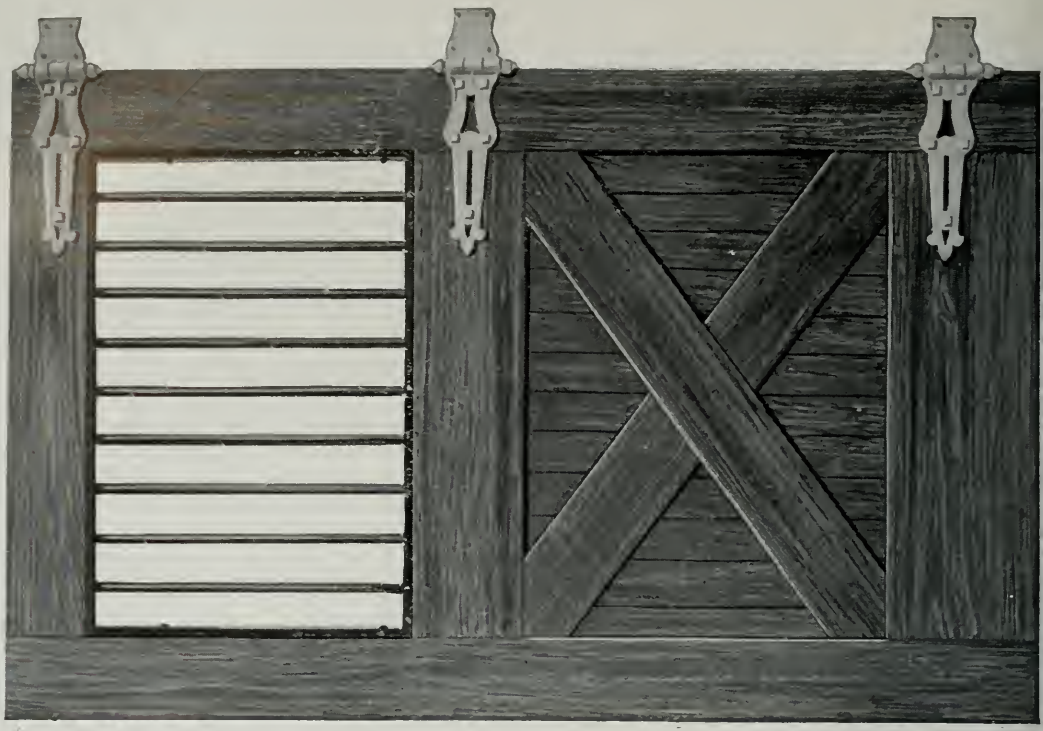
The rack projects from the wall a distance of 18-in. at the top and 12-in. at the bottom. It is 3-ft. 4-in. high with six $\frac{5}{8}$-in. steel rods. These are held in a grey iron frame. Rods are 5-in. apart centre to centre at the top and 3-in. at the bottom. Fig. 302 is finished in green. Weight, 33 lbs.

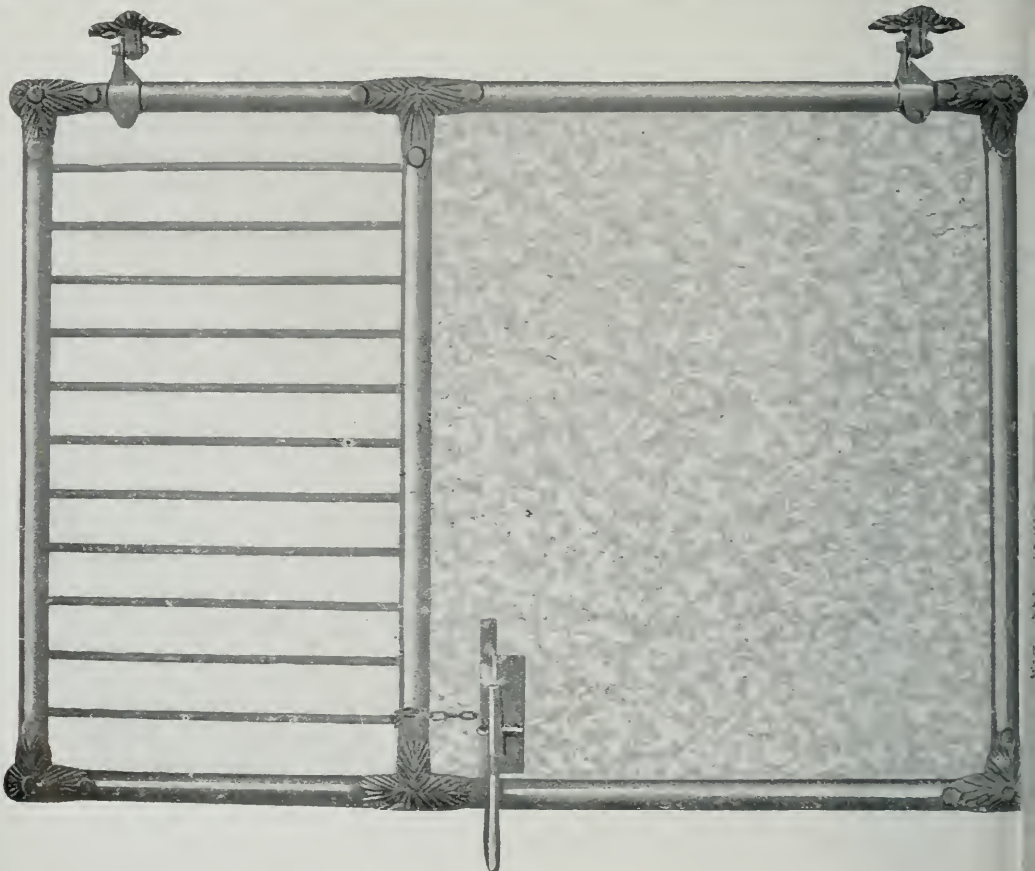
Beatty All Steel Corner Hay Rack—Fig. 554

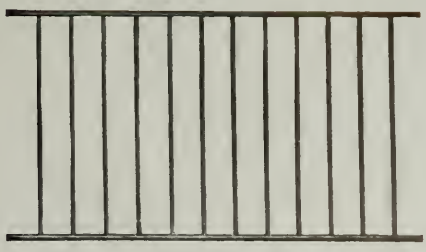
(Splash)

The Beatty All Steel Corner Hay Rack, Fig. 554, is sometimes used for tie-up stalls in place of a regular manger, where the stalls come against the wall. It is used in stables where there is not sufficient room for a feed passage in front of the stalls, making it necessary to feed hay either from behind the horses or from overhead. Fig. 554 is intended for feeding hay from overhead as shown in the illustration at the top of the opposite page. The rack can be made, if desired, to extend to the ceiling or an inexpensive chute of galvanized sheet steel can extend from the top of the rack to the ceiling and the hay can then be put down through the chute from the floor above into the rack. This can also be used in a box stall. If at all possible use mangers as shown on pages 238, 240 and 242. The all steel corner hay rack is placed in the corner of the stall as shown in the illustration, the stall guard forming one side of the rack and the wall forming the other.

This Hay Rack is made of $\frac{3}{8}$-in. steel rods, secured above and below in a frame of $1\frac{5}{8}$-in. steel tubing, with heavy malleable iron clamps to attach to the wall and stall guard. Rods are 5 inches apart centre to centre. The bottom is made of 20 gauge galvanized iron and slopes as shown in illustration to allow dust and chaff to escape. The rack is 3-ft. 4-in. high and projects 30-in. from the wall. Fig. 554 is finished in green; weight, 30 lbs.







Beatty Steel Guard for Box Stall Door—Fig. 299

(Salap)

The Beatty Steel Guard for Box Stall Door is made for use with a wood door. Instead of having a solid wood door this steel panel is inserted in the upper part and more sunlight is thus allowed to get into the box stall. It is 3-ft. wide and 2ft. deep and can be used with a door 4-ft. wide. The door stiles are usually 6-in. wide on each side which makes a door 4-ft. wide. The guard is made of $\frac{9}{16}$-in. steel rods held at top and bottom in a $\frac{1}{8}$-in. x $\frac{1}{2}$-in. x 2-in. channel. The rods are shouldered and riveted. They are set on $3\frac{1}{2}$-in. centres. Fig. 299 is finished in green. See illustration on opposite page.

Beatty Steel Box Stall Door—Fig. 555

(Shunter)

The Beatty Steel Box Stall Door is no more expensive than a good wood door. It comes already made from the factory, thus saving all the time and trouble of finding material and a carpenter to make wood doors. The steel door is strong, durable, sanitary and easy to keep clean. It is constructed to allow sunlight and ventilation to penetrate the box stall. See illustration on page 222.

The frame is made of $1\frac{7}{8}$-in. outside diameter steel tubing. The corners are welded to make them rigid and then further secured with strong ornamental malleable iron clamps. The Clamps are entirely dust proof. They are riveted to the tubing with $\frac{3}{8}$-in. rivets. The lower section of the door consists of a panel of 12 gauge steel, 3-ft. 6-in. wide and 3-ft. deep. $\frac{9}{16}$-in. round steel rods set on $3\frac{1}{2}$-in. centres, compose the upper section. The lock is made of malleable iron and is made to fasten on one of the gate posts. The hinges are strongly and substantially made of malleable iron. The lock latches on the gate post without requiring a mated casting on the post. When the gate is shut the lock can be secured with a steel pin. The door is 5-ft. deep and fills a space 4-ft. wide. Fig. 555 is finished in green. Weight 130 lbs.

Kicking Plate—Fig. 721

(Spill)

The Beatty Kicking Plate consists of a sheet of 12 gauge galvanized steel, 3-ft. square, two of the corners being rounded. These are very useful for protecting the wood work of the stall from being kicked and battered by the horse. One is needed for each side of the stall. Each plate weighs 40 lbs.

Barn of Lady Eaton

Beatty Steel Swinging Horse Stall—Front—Fig. 556

(Sober)

Fig. 556—BT Swinging Steel Front for Horse Stall (Sober)

When the row of horse stalls faces the passage, feeding is done from the front as shown on the opposite page. By the old method of stall construction the fronts of the stalls were boarded up to the ceiling and the feeding was done through wooden doors hinged to open either down or up. The doors were often left open to let light and air into the stalls which gave the horses a chance to crib and chew them. Often hay got jammed in the hinges and soon the doors were broken and required considerable repair in order to maintain their appearance and usefulness. The old hinged wood door was unhandy. It had to be unlatched and opened at every feeding.

Beatty Steel Swinging Fronts overcome all these difficulties. They are very durable and the horses cannot crib them; the rodded construction allows free circulation of light and ventilation and the method of hinging at the top prevents any possibility of breaking the hinges. The illustration on the opposite page demonstrates how very convenient and handy the swinging front is for feeding. There is no door to latch or unlatch—just push the fork full of hay against the swinging panel which automatically swings back after the hay has dropped into the manger. The weight of the panel holds it closed when not in use and there are stops on the posts to prevent the panel from being pushed outwards by the horse.

The frame of the swinging panel is made of $1\frac{5}{16}$-in. outside diameter steel tubing secured at the corners with ornamental malleable iron clamps. The bottom section consists of 20 gauge steel sheets and is 18-in. deep. The upper section is formed of $\frac{3}{16}$-in. steel rods, 23-in. long and set on 3-in. centres. A solid steel frame consisting of 2 posts and a headrail is provided to support the swinging front on the stall partition. This is made of $1\frac{5}{8}$-in. outside diameter galvanized steel tubing, posts are 26-in. long and the guards of the stall are secured to them. The front is hinged to the headrail. Front for a 5-ft. stall is 4-ft. 8-in. wide and 3-ft. 6-in. high. Fig. 556 is finished in green; weight, 80 lbs. When ordering specify width of stall.

Beatty Steel Horse Stall—Style E—
Fig. 457.

Beatty Steel Horse Stall—Sty
Fig. 4

Beatty Steel Horse Stall—Style F—

Beatty Steel Horse Stall—Sty

Beatty Complete Horse Stall—Style A—Fig. 458

(Stoat)

SPECIFICATIONS

Post—One 5 feet 6 inches stall post, Fig. 717, page 232.
Post is furnished with steel channel, wide enough to take 2-in. dressed plank. Supplied for cement or wood floor. If required for wood floor specify Fig. 543 and state length, namely, 5 feet 6 inches. Equipped with floor line protection ring.

Guard—One Beatty 6-ft. stall guard, Fig. 450, page 237. Clamps for securing guard to partition are sent attached to the guards.

Partition Cap—One 8-ft. 6-in. length of partition cap, Fig. 557, page 236. This runs from front of stall to post.

Manger and Oat Box—One, Fig. 297, Beatty galvanized closed steel manger.
Fig. 297, page 238, for 5-ft. stall. One oat box, Fig. 589, page 244.

Partition Strips—One pair Beatty Partition Strips, Fig. 559, page 242. These attach the partition to the front of the stall. ⅜-in. bolts for attaching strips to front and partition are included.

Beatty Complete Horse Stall—Style B—Fig. 511

(Stool)

SPECIFICATIONS

Post—One 6-ft. 6-in. stall post, Fig. 718, page 232.
Post is furnished with steel channel wide enough to take 2-in. dressed plank. Supplied for cement or wood floor. If required for wood floor specify Fig. 543 and state length, namely, 6-ft. 6-in. Equipped with floor line protection ring.

Guard—One 8-ft. 6-in. stall guard, Fig. 551, page 236. Clamps for securing guard to partition are sent attached to the guards.

Partition Cap—One 8-ft. 6-in. length of partition cap, Fig. 557, page 236. This runs from front of stall to post.

Manger and Oat Box—One, Fig. 297, Beatty galvanized closed steel manger. Fig. 297, page 238, for 5-foot stall. One oat box, Fig. 589, page 24.

Partition Strips—One pair Beatty Partition Strips, Fig. 559, page 242. These attach the partition to the front of the stall. ⅜-inch bolts for attaching strips to front and partition are included.

Beatty Complete Horse Stall—Style E—Fig. 457

(Spyod)

The specifications for the Beatty Complete Horse Stall Style E are the same as those given above for Style A except that the guard for the front of the stall is added as shown in the illustration on the opposite page. Post, guard between one stall and another, partition cap, manger, oat box and partition strips are supplied exactly the same as for Style A.

Beatty Complete Horse Stall—Style F—Fig. 459

(Stabo)

The specifications for the Beatty Complete Horse Stall Style F are the same as those given above for Style B except that the guard for the front of the stall is added as shown in the illustration on the opposite page. Post, guard between one stall and another, partition cap, manger, oat box and partition strips are supplied exactly the same as for Style B.

Note—If the row of stalls has a passage at both ends an extra post, guard, partition cap, and pair of partition strips will be required. If the row runs to a wall at both ends, one post, one guard, one partition cap and one pair of partition strips will be saved.

Beatty Complete Horse Stall—Style C—Fig. 452

(Stop)

Post—One, 5-ft. 6-in. Stall Post, Fig. 717, page 232.
Post is furnished with channel 4-ft. 6-in. long, wide enough to take 2-in. dressed plank. Supplied for either cement or wood floor. If required for wood floor specify Fig. 543 and state length, viz. 5-ft. 6-in. Post is made of 4-in. O.D. full weight, solid welded tubing, equipped with floor line protection ring. Finished in green and gold.

Guard—One, Closed Stall Guard, 6-ft. long, Fig. 450, page 237. Guard consists of frame made of 1 5/8-in. O.D. Steel tubing with 5/16-in. steel rods set on 3-in. centres. Height, 2-ft. 2in. A sheet steel panel is furnished at the head of the guard, 2-ft. square, and made of 20 gauge material. Clamps for securing guard to partition are sent attached to the guards.

Partition Cap—One, 8-ft. 6-in. length of partition cap, Fig. 557, page 236, to run from front of stall to post. Partition cap is made of heavy U-bar steel, 1/8-in. in thickness, 1 7/8-in wide and 2 1/8-in. deep.

Manager and Oat Box—One, Fig. 297, Galvanized Manger for 5-ft. stall, page 238, Manger is made of 16 gauge galvanized sheet steel reinforced with 1/8-in. x 1 1/2in. galvanized flat iron. It is supplied with a hole for tying the horse. Top is reinforced by 1 7/8-in. O.D. Galvanized steel tubing. It measures 4-ft. 10-in. long, 24-in. wide at top and 21-in. deep. One Oat Box, Fig. 589, page 244. It is 8-in. deep, 12-in. wide and 20-in. long, and is made of 16 gauge galvanized steel.

Partition Strips—One pair, Fig. 559, page 242. These attach the partition to the front of the stall. Partition strips are made of angle iron 1/8-in. x 1 1/2-in. and are 4-ft. 6-in. long, 3/8-in. bolts for attaching strips to front and partition are included.

Swinging Front—One, Swinging Front for 5-ft. Stall, Fig. 556, page 251. Frame is made of 1 5/8-in. O.D. Steel tubing. Bottom section is 18-inches deep and is made of 20 gauge sheet steel. Upper section is made of 5/16-in. steel rods set on 3-in. centres. The necessary frame consisting of posts and headrail and formed of 1 5/8-in. outside diameter steel tubing is provided to hold the swinging panel. Front for a 5-ft. stall is 4-ft. 8-in wide and 3-ft. 6-in. high. All the necessary clamps and hinges are supplied.

Beatty Complete Horse Stall—Style D—Fig. 512

(Stork)

Post—One 6-ft. 6-in. Stall Post, Fig. 718, page 232. Post is furnished with channel 4-ft. 6-in. long, wide enough to take 2-in. dressed plank. Supplied for either cement or wood floor. If required for wood floor, specify Fig. 543 and state length, viz. 6-ft. 6-in. Post is made of 4-in. O.D. full weight solid welded steel tubing equipped with floor line protection ring. Finished in green and gold.

Guard—One 8ft. 6-in. Closed Stall Guard, Fig. 551, page 236. Guard consists of frame made of 1 5/8-in. O.D. Steel tubing with 5/16-in. steel rods set on 3-in. centres. Height, 2-ft 2-in A sheet steel panel is furnished at the head of the guard 2-ft. square and made of 20 gauge material. Clamps for securing guard partition are sent attached to the guards.

Partition Cap—One, 8-ft. 6-in. length of Partition Cap is supplied. Specifications for this are the same as those given for Style C. Horse Stall.

Manger and Oat Box—These items are the same for Style D as those given above for Style C.

Partition Strips—One pair of partition strips are supplied with Stall D, exactly the same as specified above for Style C.

Swinging Front—One, Swinging Front for 5-ft. stall, Fig. 556, page 251. Same specifications as Style C.

Note—If the row of stalls has a passage at both ends, an extra post guard, partition cap and pair of partition strips will be required. If the row runs to a wall at both ends, one post, one guard, one partition cap and one pair of partition strips will be saved.

Fig. 444—(Stress) BT Gutter Trap

Cross Section showing inside view of Fig. 444

Fig. 560—(Stucco) BT Gutter Cover for Cement Gutter

Fig. 561—(Sandan) BT Manger Outlet

Fig. 339—BT Drain Pipe Grating
No. 1 (Spent) No. 2 (Soap)

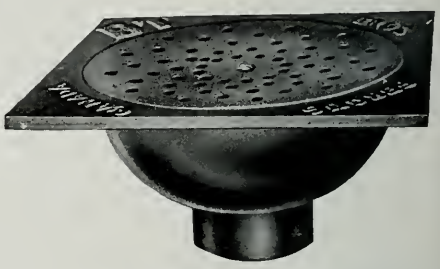


Fig. 337—BT Bell Trap No. 1 (Speck)
No. 2 (Speed)

The Beatty Gutter Trap—Fig. 444

(Stress)

tables which have a drainage system by which the liquid manure is drained away a tank or stables that are flushed out with water need gutter traps, to carry the ater off quickly. These gutter traps should be used in the gutters where required. ıe number varying according to the length of the gutter. They should also be used ı box stalls, pens, behind tie-up horse stalls, or in any other place where a good rain trap is needed. The Beatty Gutter Trap is an improvement on the Bell Trap ecause it flushes clean, no sediment remaining in the trap. In the Bell Trap, sedi- ıent is likely to collect around the outlet column. This in time decays, causes an ffensive odor and is unsanitary. To insure proper drainage, the floors should be iven a slope of about one inch to the traps. The Beatty Gutter Trap is fitted with double grating to keep out material that might choke the pipes. Both top and bot- ım gratings are easily removed at any time.

he Beatty Gutter Trap is made of grey iron and finished in black asphalt paint. ize is 10 inches by 10 inches. Weight, 40 lbs. Size of outlet, 4 inches.

The Beatty Bell Trap—Fig. 337

(No. 1 Speck; No. 2 Speed)

he Beatty Bell Trap serves the same purpose as Fig. 444. The illustration on the pposite page shows how the strainer protects the pipe. It is made of grey iron and nished in black asphalt paint. It is made in two sizes: No. 1, 6 inches by 6 inches, inch outlet, weight, 12 pounds; No. 2, 12 inches by 12 inches, 4 inch outlet; eight, 24 pounds.

Beatty Manger Drain Pipe Outlet—Fig. 561

(Sandan)

he Beatty Manger Drain Pipe Outlet is used to drain the manger when manger used to water the cows, or when mangers are flushed out with water, to clean ıem. It is made of grey iron with carefully fitting brass cap to prevent rust. It is lso fitted with grey iron screen which may be readily removed for cleaning. It is ıade for a 4 inch pipe and weighs 9 pounds.

Beatty Drain Pipe Grating—Fig. 339

(No. 1 Spent; No. 2 Soap)

he Beatty Drain Pipe Grating is made of grey iron and finished in black asphalt aint. Made in two sizes; No. 1, 6 inches by 6 inches, weight, 8 pounds; No. 2, 2 inches by 12 inches, weight, 21 pounds.

Beatty Gutter Cover for Cement Gutter—Fig. 560

(Stucco)

he Beatty Gutter Cover is usually used to cover a cement gutter behind the horses, r in any other place where it is necessary to cover a cement gutter. The holes in ıe gutter cover allow the liquid to run away into the drain and prevent the solid ıatter from clogging the drain and trap. It is made of grey iron and finished in lack asphalt paint. Size: 6½ inches wide, ¾-inch thick. It is made in 5-foot ngths and weighs 11 pounds per foot.

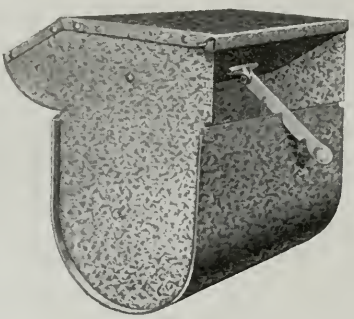


Fig. 445 (Shabby)
Beatty Fresh Air Inlet

Fig. 604 (Vacant)
Fresh Air Inlet for Wood Walls

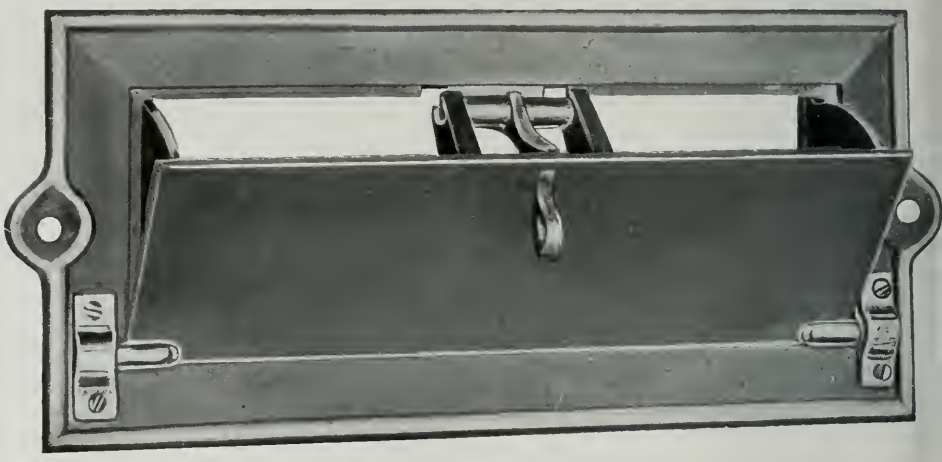


Fig. 336—BT Ventilator
(Spark)

Fig. 497
BT Wall Trough
No. 1 (Seal) No. 2 (Sect)

Fig. 335—BT Ventilating Wall Brick
3 in. x 9 in. without slide (South)
6 in. x 9 in. with slide (Space)

Beatty Fresh Air Inlets—Fig. 445 and 604

A very complete description of the Beatty Fresh Air Inlets is given on page 21, with full details as to the number of inlets required for different kinds of stock. See page 21.

The Beatty Ventilator—Fig. 336

(Spark)

The Beatty Ventilator can be put anywhere in the wall or partition. A spring catch keeps it locked and when this is released, the damper will drop open. The shape of the damper, when open, directs the current of air upward, so that it will not cause a direct draught. It is made of grey iron. Size, over all, 7 x 15 inches. Size of frame, 5 x 13 inches. Finished in green. Weight, 12 pounds.

The Beatty Ventilating Wall Brick—Fig. 335

(No. 1, South. No. 2, Space)

The Beatty Ventilating Wall Brick is made in two sizes: No. 1 is made either with or without slide. Made of grey iron, finished in green.
Fig. 335, No. 1, without slide, 3 x 9 inches, weight, 2½ pounds.
No. 2, with slide, 6 x 9 inches, weight, 5 pounds.

Beatty Wall Trough—Fig. 497

(No. 1, Seal. No. 2, Sheet)

The most satisfactory and convenient way of watering horses in the stable is by the use of Beatty Water Bowls described on pages 190-208. In this way, the horses are automatically watered, without having to be turned out to a trough. Sometimes it is convenient to have a small watering trough in the stable, which saves time, as compared with turning the horses out for watering. The Beatty Wall Trough is used for this purpose. It is usually placed along the wall, behind a row of stalls, just inside the door.

A pipe may be brought down from the overhead supply tank and fitted with a tap just above the tank. There is an overflow outlet at the top of the trough, with a double screen. This is usually placed at the back of the trough as shown, and the overflow pipe put through the wall or partition behind.

In cases where the BT Wall Trough is attached to a stone or concrete wall, or in any position where it is not convenient to tap the wall behind, the overflow pipe can be connected through the bottom of the trough by means of a threaded pipe connection, locknuts and leathers, instead of at the back and run down to a drain.

In ordering, specify either a back or bottom overflow outlet, and we will tap the trough at the proper place. Unless specified, the trough is shipped without being tapped. It is made of 20 gauge galvanized iron; the upper edge is rolled over a wire and the trough is well soldered. It is supported on a frame of 2 x ¼ inch galvanized flat iron, and there is a heavy angle iron frame on each side to attach to the wall.

Made in two sizes: No 1, 25 inches wide and 14 inches deep projecting 12 inches from wall; No. 2, 30 inches wide and 18 inches deep, projecting 12 inches from wall. No. 1 weighs 20 pounds; No. 2, 25 pounds. Water-tested before leaving factory.

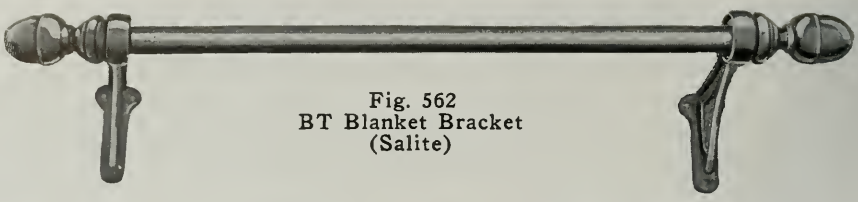


Fig. 562
BT Blanket Bracket
(Salite)

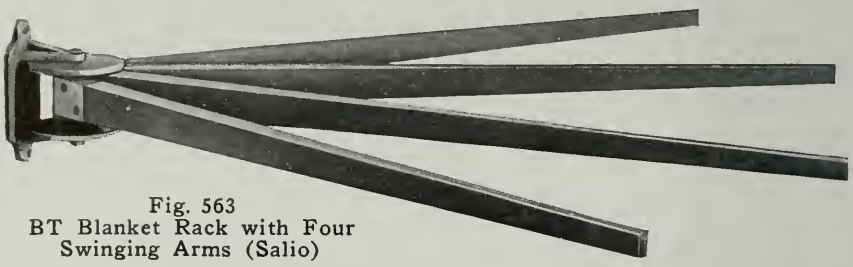


Fig. 563
BT Blanket Rack with Four
Swinging Arms (Salio)

Fig. 340
BT 8-inch Harness
Peg
(Soar)

Fig. 341
BT 12-inch Har-
ness Peg
(Smock)

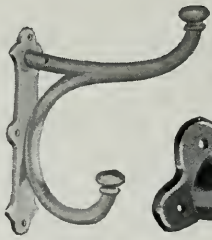


Fig. 565
BT 14-inch Har-
ness Peg
(Sunder)

Fig. 566
BT Rein Brackets
(Sally)

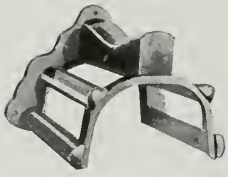


Fig. 567
BT Harness Collar
Bracket
(Sam)

Fig. 568
BT Harness Bridle
Bracket
(Sammy)

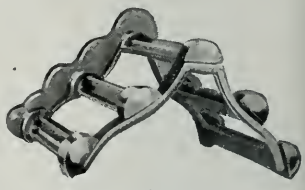


Fig. 569
BT Harness Saddle
Bracket
(Sana)

Fig. 571
BT Soap Box
(Sanal)

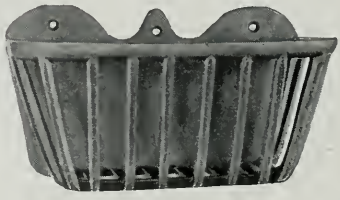


Fig. 572
BT Sponge Rack
(Sand)

Fig. 570
BT Implement Hook
(Sanda)

Beatty Blanket Bracket—Fig. 562
(Salite)

The Beatty Blanket Bracket is fitted with iron brackets, and 3-foot roller with heavy ornaments at each end. The metal is painted green, the wood varnished. Weight, 5 pounds.

Beatty Blanket Rack with Four Swinging Arms—Fig. 563
(Salio)

The Beatty Blanket Rack is a great convenience in the stable. There are four swinging arms to receive blankets, and each is secured in a metal socket. This bracket will carry the heaviest blankets.
The arms are each 4 feet long, made of nicely varnished Georgia pine.
All metal parts are painted green. Weight 44 pounds.

Beatty Harness Pegs—Figs. 340, 341 and 565
(Fig. 340 Soar, Fig. 341 Smock, Fig. 565 Sunder)

Beatty Harness Pegs are made in three sizes: 8 inch, Fig. 340; 12 inch, Fig. 341; 14 inch, Fig. 565.
The 8 inch and 12 inch sizes are made of malleable iron, the 14 inch of grey iron.
They are finished same as horse stalls.

Beatty Ventilating Harness Brackets

The framework of the Beatty Ventilating Harness Brackets is iron, painted green with polished mahogany cappings.
Beatty Rein Brackets (one pair), Fig. 566, weight ½ pound (Sally).
Beatty Collar Bracket, Fig. 567, weight 5 pounds (Sam).
Beatty Bridle Bracket, Fig. 568, weight 5 pounds (Sammy).
Beatty Saddle Bracket, Fig. 569, weight 6½ pounds (Sana).

Beatty Implement Hook—Fig. 570
(Sanda)

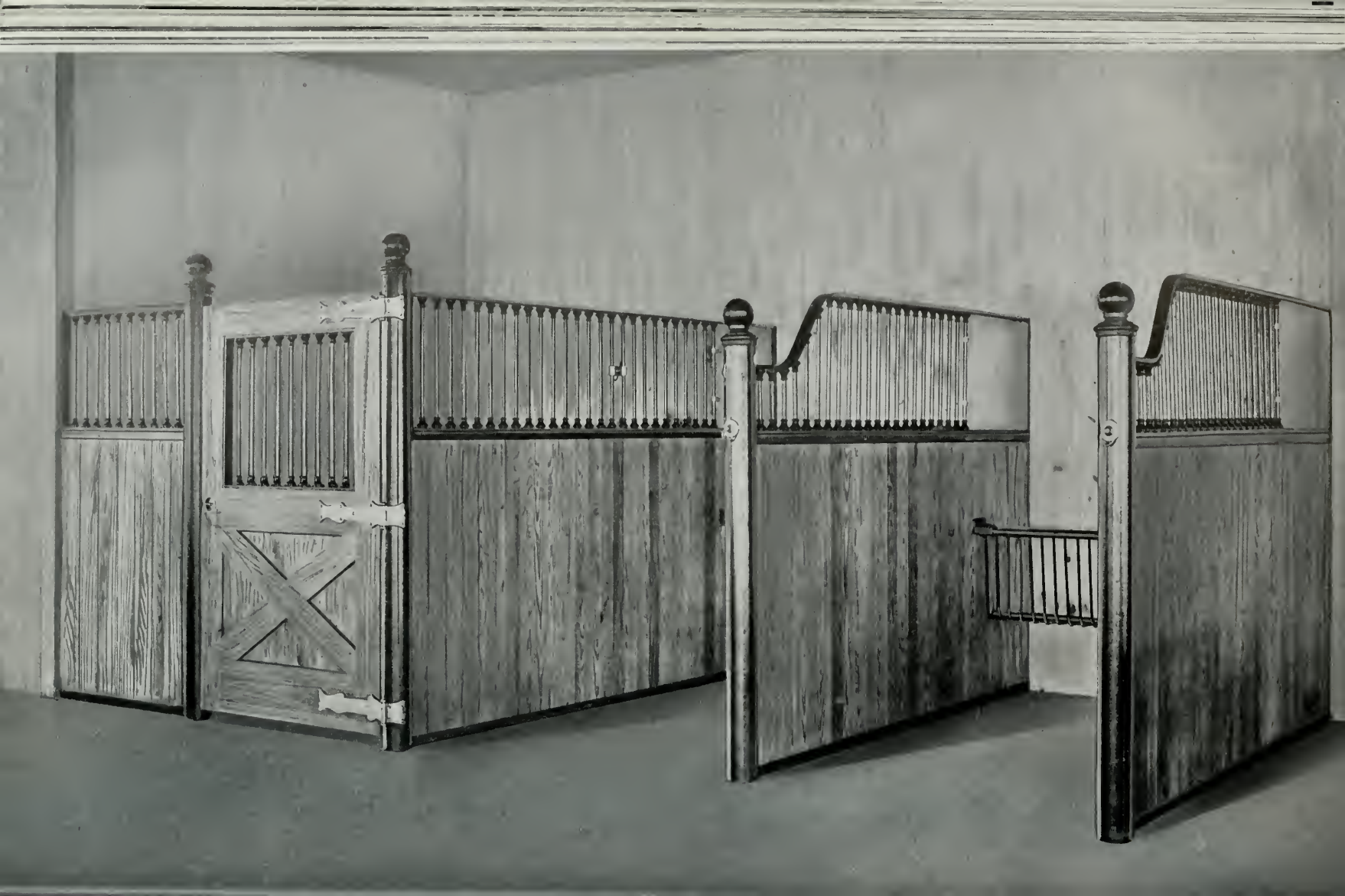
The Beatty Implement Hook is used for hanging shovel, broom or fork.
It is a grey iron casting, drilled for two ⅜-inch lag screws, and painted green. It Weighs 2 pounds.

Beatty Soap Box—Fig. 571
(Sanal)

The Beatty Soap Box has a grated bottom which keeps the box free of moisture. Made of grey iron, finished green and weighs 1 pound.

Beatty Sponge Rack—Fig. 572
(Sand)

The Beatty Sponge Rack is a convenient and sanitary place for the sponge.
The bottom is grated to allow moisture to drain away.
It is made of grey iron, finished in green and weighs 9½ pounds.



Beatty Ornamental Horse Stable Fittings

The illustration on page 213 gives an idea of the splendid appearance of these fittings in the horse stable. In ordering kindly refer to figure numbers.

Guards

Heavy Guard, Fig. 573 (Sob), for tie-up stalls. This is shown on page 262. Rods are ¾-inch steel with ornamental ferrule at the top and bottom. Sheet iron panel, 2 feet square, is furnished at the head of the guard. Main frame is made of 2 inch x ½ inch channel, and is capped with ⅛ inch x 2 inch band iron, which is bolted to main frame. Painted green. Weight per foot, 18 pounds.

Heavy Guard, Fig. 574 (Sobber), for box stalls. This is shown on page 262 Rods are ¾-inch steel with ornamental ferrule at top and bottom. Main frame as in Fig. 573. Painted green. Weight per foot, 18 pounds.

Heavy Guard, Fig. 574 (Sobber), for box stalls. This is shown on page 262. Rods holding the upright siding in box stalls or tie-up stalls, both top and bottom. They should always be purchased with the guards. They are drilled at top and furnished with ⅜ inch bolts, with which they may be secured to guards. At the bottom they are held to the post and wall with bolt anchors. Made of $\frac{3}{16}$ inch steel, 2 inch x 2 inch. Painted green. Weight per foot, 3 pounds.

Door

Heavy Box Stall Door, Fig. 558. A heavy box stall door, 4 feet x 6 feet 4 inches, is shown in the photo on page 262. This is made by use of a panel 3 feet wide with ¾ inch rods, similar to the guard. Code word for woodwork and guard without lock and hinges—Salid. For lock and hinges, see below.

Heavy Strap Hinge, Fig. 577. Heavy hinge, made of brass or malleable iron of ornamental design, 24 inches long, 18 inches from joint to end. Often three are used on a door. Code words: 24-inch polished brass (Sapper); 18-inch polished brass (Sapley); 18-inch malleable iron (Sappy).

Brass door lock, Fig. 578 (Southy). It is furnished with mortise door bolt and two flush ring handles. It weighs 5 pounds. When ordering state if right or left-hand lock is required.

Post—Fig. 733 (Snuff). This is 5 inch outside diameter with regular anchor and round knob cap. It is made in two lengths, 6 ft. 6 inches and 7 ft. 6 inches.

Rings, Mangers, Oat Bowls, Etc.

Brass Ring for Post, Fig. 579 (Somme). Furnished with 3 inch plate and screws for fastening to the post. Made of polished brass. It weighs 2 pounds. Brass Ring for Guard, Fig. 580 (Sink). Made of polished brass. It weighs 2 pounds.

Porcelain Enamelled Oat Bowl, Fig. 576 (Sinker). It is the same oat bowl as Fig 301, page 244, but inside is enamelled.

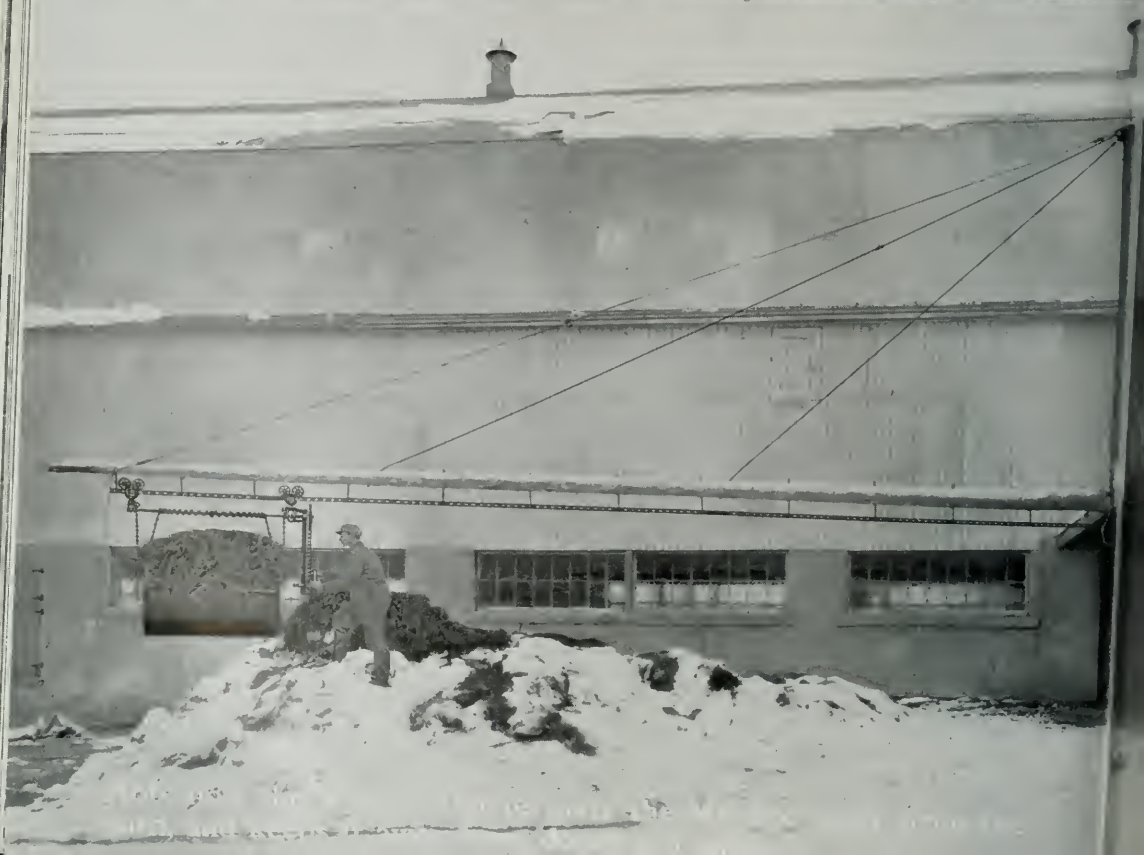
Porcelain Enamelled Manger, Fig. 525 (Sunk). It is the same manger as Fig. 296, page 240, but inside of oat box is enamelled.

"My! It's easy with the Beatty and done in one-third the time"

What is hard work for a strong man with a wheelbarrow

Becomes easy work for a boy, with a Beatty Manure Carrier

It takes a lot of work to produce clean milk with a yard like this, besides it is bad for the buildings.



The old way—Digging paths for wheelbarrow

The new way—BT Carrier runs right over the snow drifts

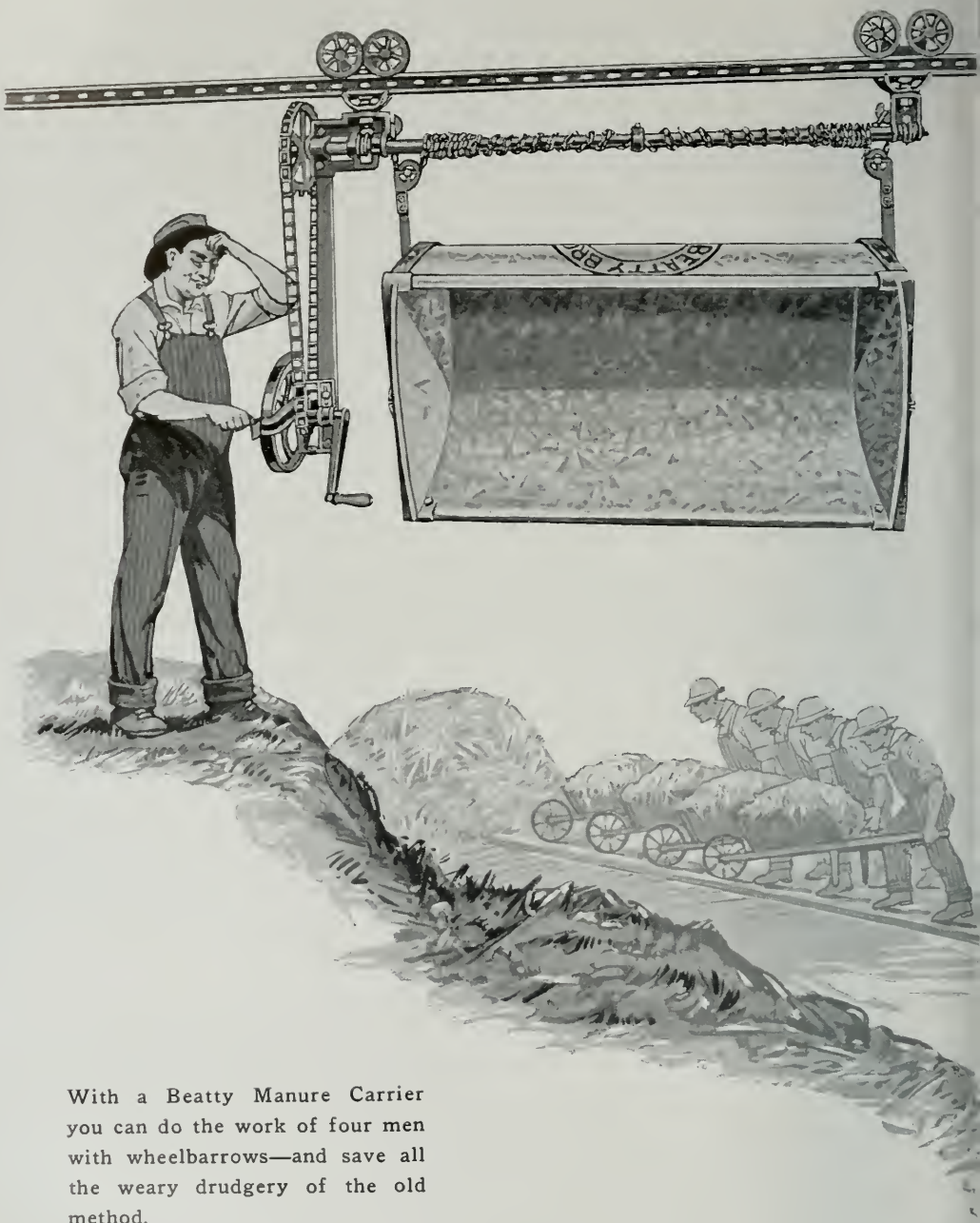
Filling the Carrier

Windlassing up the bucket

Out on the pole and away to the pile

The big, wide-mouthed Beatty Bucket drops right down to the gutter.

And even a boy can push four big wheelbarrow loads out to the manure pile.



With a Beatty Manure Carrier you can do the work of four men with wheelbarrows—and save all the weary drudgery of the old method.

A Beatty Manure Carrier Makes Stable Cleaning Easy

A Full Hour's Work Is Done In Twenty Minutes

Of all the work on the farm, cleaning the stable is one of the hardest, the most monotonous and the most disagreeable.

The stable has to be cleaned every day; it's something that cannot be neglected. Every day, including Sunday, the same hard, dreary, monotonous work has to be done. In fact, to meet the dairy regulations in some districts, some farmers are cleaning their stables twice a day.

The task of wheeling out barrow-load after barrow-load of manure is hard work for the strongest man. Particularly is this the case when the yard is muddy or filled with snow. Ploughing through a muddy, slushy and manure-filled barnyard, with dirt up to the ankles, and the wheelbarrow sticking fast in the mud or sliding off a slippery plank, is enough to make anyone dread cleaning out the stable.

Of course, you are interested in anything that will make this hard work easier and take the drudgery out of it.

Because this hard work and drudgery are unnecessary. Just as the binder took the place of the cradle, so the Beatty Manure Carrier has taken the place of the wheelbarrow. With a manure carrier, all this drudgery can be abolished, easily, quickly and cheaply.

Beatty Manure Carriers are saving work, time and energy on many thousands of farms. No farmer who has had one will do without it. Any boy, twelve years old or more, can operate a Beatty Manure Carrier, so why board and pay wages to a hired man?

The Beatty Manure Carrier Saves Time

One of the main reasons why the Beatty Manure Carrier is profitable is on account of the time it will save.

As compared with the wheelbarrow, it will cut out two-thirds of the time taken to clean out the stable. Work can be done in twenty minutes which formerly took a full hour. This saving of time is most valuable in the Spring and Fall. In the Spring, every minute of time is needed in cultivating and seeding, because it is most important to put every minute of available time on the land in order to get the crop in early. In the Fall, silo-filling and Fall plowing again call for every minute of the farmer's time.

With all this important work to be done, the cattle are still in the stable, and the stable must be cleaned every day. At these two seasons of the year, a saving of forty minutes in an hour is very valuable and will soon offset the cost of a manure carrier.

In the short days of late Fall, Winter and early Spring, the stable cleaning often has to be done after dark. The manure carrier will follow the track clear out to the end of the pole. No slippery planks to follow. No muck, mud or snow to hinder! In the Summer there are always the horse stalls and box stalls to be cleaned out, so a Manure Carrier saves time and labor for you the year round—every day, Sundays included.

Dumping Direct into Spreader, Skinner Bros., Dresden, O

Dumping into Wagon, M. Bernard, Vaudreu

Barn of LeMoine Bros., North Sydne

How the Beatty Manure Carrier Works

The reason that the Beatty Manure Carrier saves so much time and labor is that it runs *overhead*. Conditions on the ground make no difference to it because it is independent of them. It doesn't matter if the barnyard is knee deep in mud or waist high in snow—the Beatty Manure Carrier runs smoothly on its overhead track, over the top of every obstruction.

The overhead steel track is hung from the ceiling of the stable. It runs behind the stalls, back of the gutter, so that the bucket, when lowered will be close to the gutter for loading. There are switches in the track so that the carrier can branch off into horse stable, calf pens, pig pens, or any other place in the stable where there is cleaning to be done. A swinging pole carries the track from the stable door outside the barn to a distance of twenty to forty-five feet, or farther by the use of a biped or arches as shown on pages 304-307.

The Beatty Manure Carrier runs along this level, overhead track. It runs smoothly with the biggest load. Any boy can push it, for all the weight comes on the track and there is no heavy lifting or hard pushing. With a Beatty Manure Carrier, a boy can do the work of a strong man.

Run the carrier behind the stalls; lift the friction lock on the hand wheel, and the bucket lowers to the floor by its own weight. To govern the speed in lowering, a brake can be applied to the inner flange of the handwheel by raising the friction lock lever still further. The bucket lowers close to the gutter so that it can be filled easily and quickly. It is easy to load all the manure, both liquid and solid, into the wide-mouthed bucket without spilling and slopping liquid on the cattle walks or walls. It is a matter of only a few seconds to elevate the bucket and it only takes a few moments to run the bucket with its four to five barrow loads of manure out along the swing pole into the yard. Pull the trip latch and the big load dumps into the wagon, spreader or sleigh, or on the pile, as may be most convenient. The whole operation is so handy that the job is done in a few minutes.

Carries Big Loads

Eight hundred pounds is an easy load for the Beatty Manure Carrier—equal to four or five big wheelbarrow loads. One or two trips to the pile are sufficient for most stables. Compare this with the four to eight trips through the mud and slush with a wheelbarrow! It is not hard to see why the Beatty Manure Carrier saves hours of valuable time and hours of weary drudgery.

It's no wonder that farmers everywhere are buying Manure Carriers. Not only is much time saved, but each trip to the pile is made so much easier. The carrier is independent of ground and weather conditions. To be able to go over snow banks, mud and ice with a carrier, is so easy when compared with the old fashioned method. It is a pleasure too, to be able to get the manure well away, over to the far side of the pile, and keep the yard clear and clean.

Some farmers prefer to take the manure direct from the stable to the fields. With a Beatty Manure Carrier this can be done with only one handling. The carrier is loaded in the stable, run out on the overhead track, and the manure dumped directly into spreader, wagon or sleigh. With the Beatty Manure Carrier there is only one handling—that of filling the bucket in the stable.

Saves Farm Fertility

One of the most important features of the Beatty Manure Carrier is the way it saves the valuable liquid manure.

According to Experimental Stations in Canada and other countries, careful tests, made in many different ways, all show that 75% of the value of the manure as a whole is contained in the liquid, and that the increase in yield is astonishing when this liquid manure is applied on the land. They strongly emphasize the fact that this liquid should be carefully preserved and applied on the land. In Great Britain, and Europe generally, where the use of fertilizers has been carried a great deal farther than it has here, the liquid manure is drained off into a pit and kept carefully. It is then pumped or dipped into a wagon and spread on the land, or mixed with the solid manure. In our own Province of Quebec, this same movement for erecting complete manure sheds with pits for the liquid, has been greatly fostered and increased by the strong backing of the Provincial Government. A plan for a simple manure shed is shown on pages 70 and 71.

Nothing will help more in preserving the liquid manure than a Beatty Manure Carrier. The watertight steel bucket prevents any leaking in passages or yard and all the valuable liquid is safely carried to the manure pit, or else to the pile.

This whole question of conserving farm fertility deserves more attention than we are accustomed to give it. Farmers spend thousands of dollars annually on commercial fertilizers, while all the time they are allowing the best fertilizer of all—farm manure—to spoil and lose its fertilizing value by leaching, fire-fanging, rapid fermentation and by the leaking away into creeks of the valuable liquids. A Beatty Manure Carrier will pay for itself by saving the fertilizing value of farm manure.

Clean Yards and Sanitary Surroundings

As well as saving time and labor, and preserving the fertilizing value of the manure, a manure carrier makes it easy to keep the barnyard clean and put the manure well away from the buildings.

A manure pile close to the barn is a breeding place for disease germs and flies. It rots and destroys the buildings and spoils the appearance of the stable surroundings. Without a manure carrier, it is practically impossible to get the manure well away from the buildings and to keep the yard clean and dry. The manure tends to collect around the doorway, close to the building. It holds the soakage, and soon there is a dirty pool of muck and mire through which the cows must wade to get in and out of the building. They splash it on their udders, greatly increasing the difficulty of producing clean milk. They carry the muck in on their feet, making it hard to keep the stable clean and sanitary. It is for this reason that dairy regulations specify that the manure must be kept 40 feet or more away from the stable. When so much is being said about sanitary stable conditions, the production of clean milk and about the prevention of the spread of disease, a Beatty Manure Carrier is one of the best implements you can buy to assist in producing a clean, wholesome product.

With a Beatty Manure Carrier in your stable you are certain, even in the worst weather, that the manure will be put right out on the pile.

The Old Way—hard work—dirty yards—manure around the barn

The Beatty Way—easy work—
from the building

The Beatty Works Noiselessly

A great feature about the Beatty Carrier is the noiseless running and quiet way it does the job. The cows are not disturbed and you must consider this if you are interested in making greater profits from milking cows. Sensitive cows should not be disturbed by drawing through or backing a wagon into the stable. Nothing will irritate a nervous cow and retard her milk flow more than the confusion caused by horses in the passage behind her.

When horses are used for cleaning out the stable, there is all the trouble of hitching and unhitching every day; the danger that they will slip on the cement floor and hurt or sprain themselves and the danger of jamming and spoiling the doors as the wagon or stoneboat is drawn through. The manure has to be forked on and off the wagon or stoneboat and the liquid manure is spattered over the passages and lost. The wheels on the wagon break down the concrete and spoil the floors.

Pays For Itself Many Times

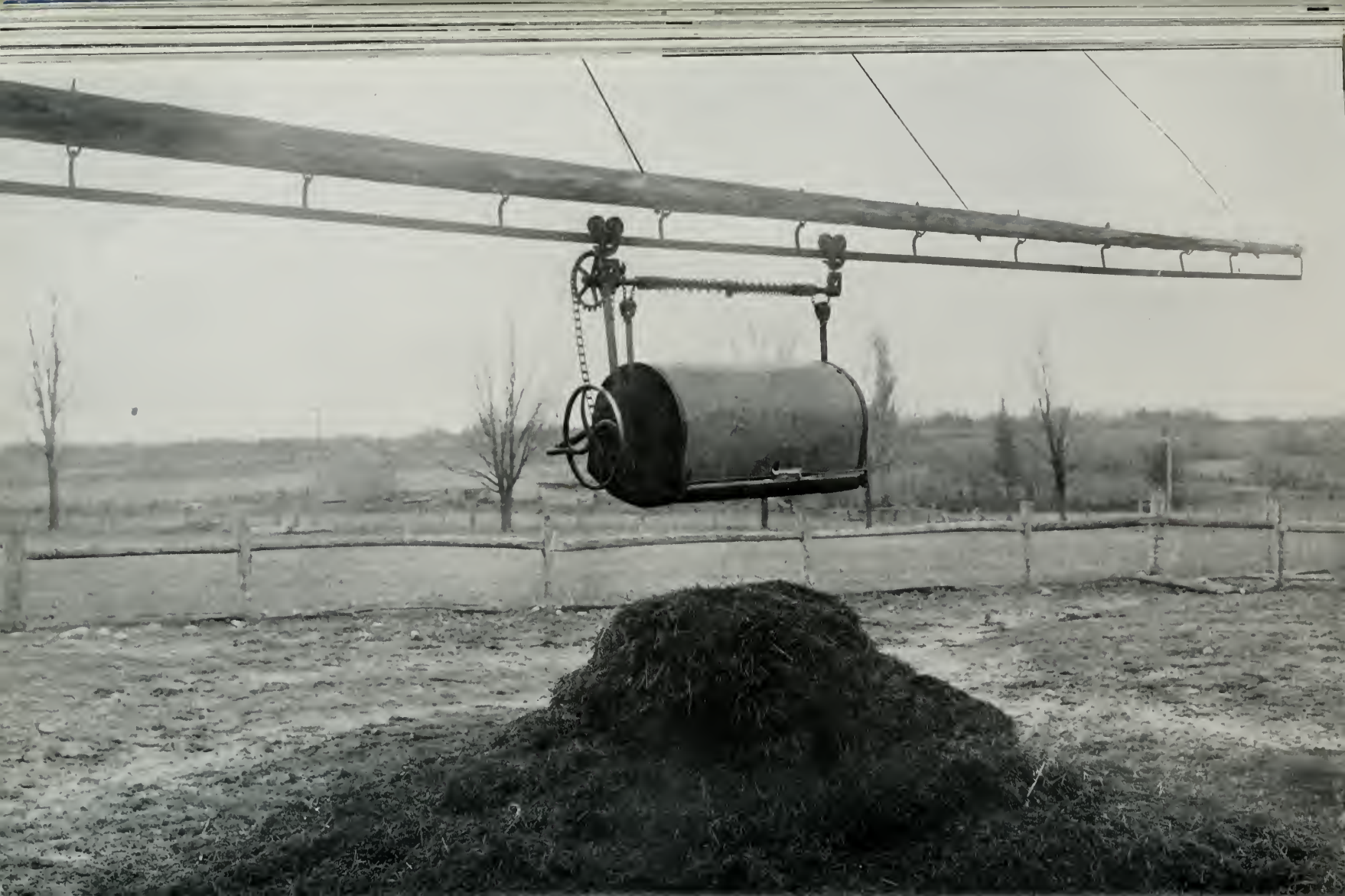
A Beatty Manure Carrier will do the work more easily, more quickly and with less expenditure of time and energy. It is more economical in every way.

A Beatty Manure Carrier saves as much time and work in caring for the cows as a binder does in handling the wheat crop. It is as much a necessity for progressive farming as any other implement.

Remember that a manure carrier is used for not only three or four weeks in the year, but every day—Sundays included—as long as there is any stock in the stable. It is used not six days in the week, but seven days, for the stable has to be cleaned on Sundays too.

Think of all that a manure carrier will do for you. Think of the release from the drudgery of stable cleaning—the increased pleasure in farming and the added interest that the boys will have in the barn work—the greater contentment of the hired help, making it easier to get a good man and often making hired help unnecessary—the saving in time—the saving of trips backwards and forwards to the manure pile—the protection of the building from the fumes of the manure—the increased cleanliness of the stable and yard—the preservation of the fertilizing value of the manure—the quietness in stable cleaning.

Consider these things carefully. You will then be convinced that a manure carrier will soon pay for itself, and will make special effort to instal one this year.



The Beatty Manure Carrier

Any manure carrier, when properly installed, is an improvement on the wheelbarrow method, but there are certain very important principles which must be observed in constructing a manure carrier, if it is to do its work properly. A manure carrier has heavy work to do. It is often loaded to the limit and banged or jerked around by careless help. Every part must be strong if it is to give permanent satisfaction.

It was with these requirements in mind that we designed every part of the Beatty Carrier. We know that every part is built to stand up under the hardest use. We have every confidence in the Beatty Carrier and want you to have the same confidence. In order that you may see exactly what material we use, we have given detailed specifications on page 289.

The Reputation of the Beatty Manure Carrier

The Beatty Carrier has been on the market over sixteen years. There are carriers made at that time that are still in use and working as well as ever. As a proof of this statement, we quote below a letter from Mr. Mighton, who now owns the farm on which one of our very first carriers was installed over sixteen years ago.

If we had space we could quote dozens of letters saying much the same thing. There is something worth while in the construction of a carrier that will stand up to the heavy work of stable cleaning for over sixteen years, without a hitch and without a breakdown.

Gentlemen:

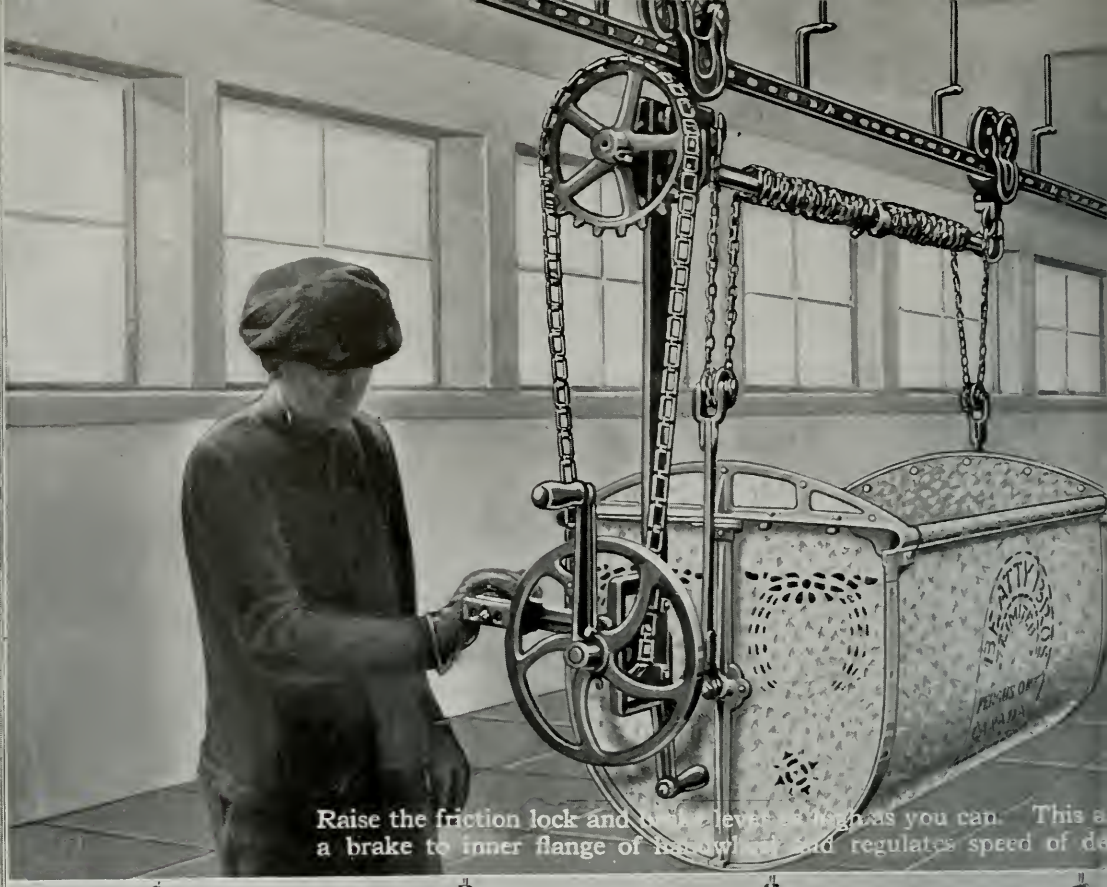
The Beatty Manure Carrier that was in the barn when I bought this farm is still in perfect working order. We use it every day the stock are in the stable to clean out the manure from about forty head. It looks as though it would be good for years of use yet. Considering that it has been in use for sixteen years, you are certainly to be congratulated on the fine construction of your carrier. I know that one of the neighbors, who installed one of another make some two years later than the one in my barn, has had to buy two new buckets since that time. I can honestly advise him to buy a Beatty.

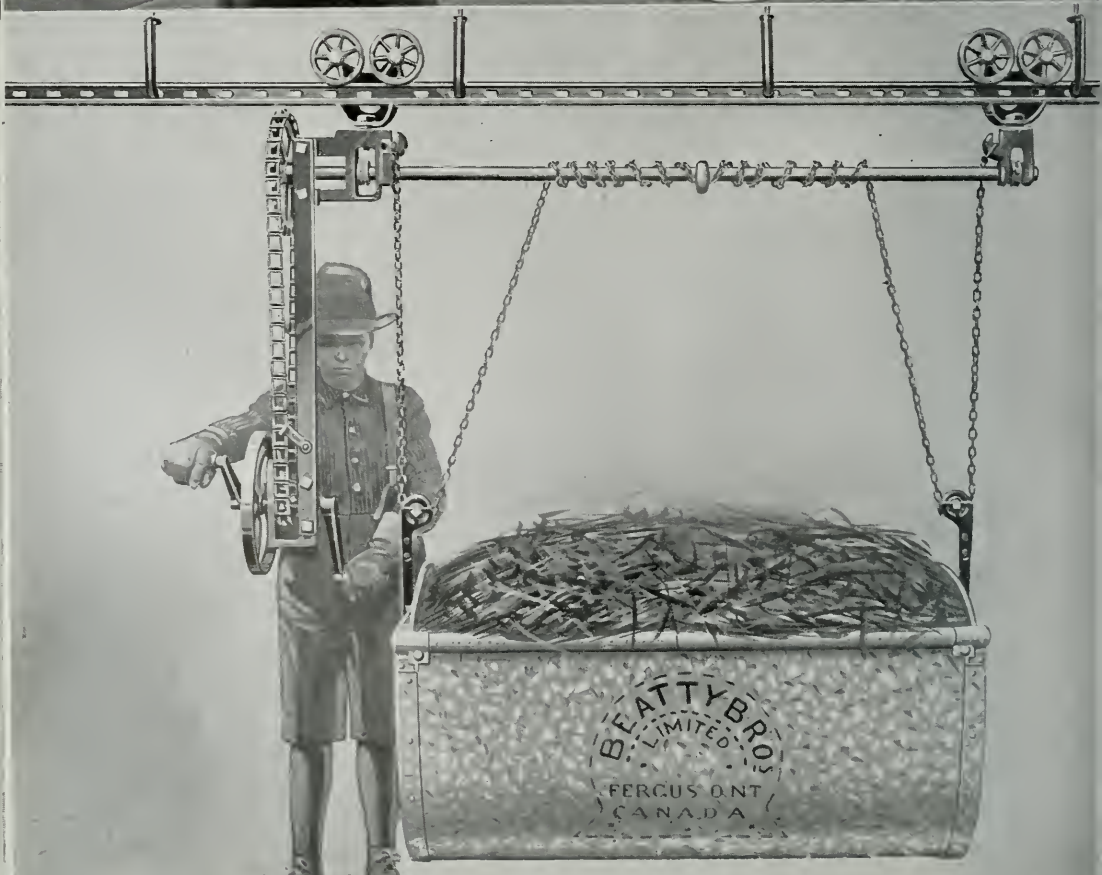
Strong—With Few Working Parts

The reason that the Beatty Manure Carrier will give years of satisfactory service is that it is *strong*,—with few working parts. Note the simple construction. Every part is heavy and strong. There are no ratchets, worm gears, or other unnecessary complicated wearing parts.

The Beatty Carrier has won an outstanding reputation in every section of the country where manure carriers are used, so that nine out of ten farmers will say that the Beatty is the best. Ask the man who is using one!

Twice as many Beatty Manure Carriers are sold in Canada annually as all other makes combined. They are used in the Government Experimental Farm and in the big Dairies. Because the Beatty Carrier gives such splendid service, one of the most prominent agriculturists in Canada said,—"There is only one Manure Carrier, and that is the Beatty".





It is easy for a boy 12 years old or more to windlass up a fully loaded Beatty

The Advantages of the Beatty Manure Carrier

Let us imagine that you are now operating a manure carrier. You have it in the stable, on the overhead track. The first operation is to lower the bucket for loading.

Easy to Lower

The Beatty Carrier quickly lowers by its own weight. It does not have to be windlassed down. Simply raise the lock off the wheel by raising the lever. The lock for the outside of the wheel and the brake for the inside of the wheel are both on the same lever. The bucket lowers by gravity. To regulate the speed in lowering, apply the brake to the inner flange of the handwheel by raising the lock and brake lever as high as it will go. Some carriers have to be windlassed down. This wastes both time and energy.

Easier to Load

The Beatty Carrier has a large open mouth. There is no bail or other obstruction over the top of the bucket to hinder the operation of filling. A manure carrier with a bail over the bucket makes filling hard and awkward and it takes extra time and labor to fork in the manure. If the bail over the bucket is high enough to make filling easy it reduces the height to which the bucket can be raised, which is a hindrance in clearing the pile or dumping into spreader or wagon.

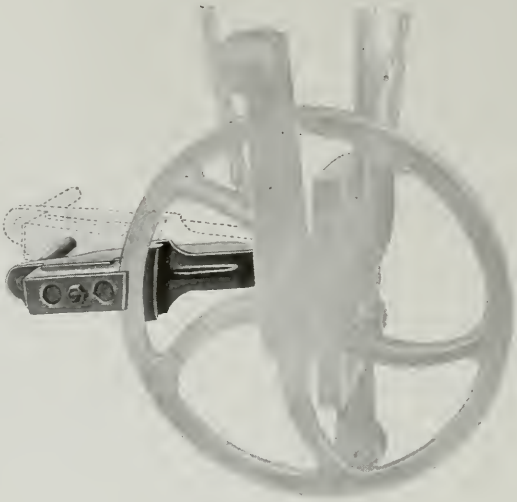
Easy and Quick to Raise

Take a little while to notice the method of raising the Beatty Carrier. This is shown clearly at the bottom of the opposite page. Notice the double handle. Both hands are used at the same time to turn the lower sprockets; no time or energy is wasted. Two hands are better than one; 50% of the energy which would otherwise be required to raise the bucket is saved, so that even a small boy can easily raise a heavily loaded Beatty Carrier.

The double crank lift on the Beatty Carrier makes it the quickest to elevate. A load of 600 pounds can be raised in 25 seconds, because the operation is continuous; you can apply power to it evenly until the bucket is raised. Endless chain carriers are raised by pulling the hand chain. This operation is not continuous; there is a stop in the process of elevating every time the operator stops and takes a fresh hold on the chain to pull down.

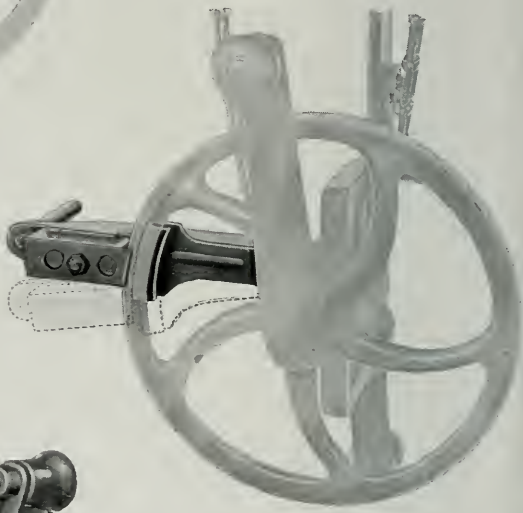
The handwheel has many advantages for lifting as compared with the endless chain lift. The double cranks give enormous purchase. The manner in which the windlass chain winds on the shaft gives a double purchase. The whole windlass and handwheel is back geared 32 to 1. Eleven pounds pressure exerted on each crank will lift 600 pounds in the bucket. Not only is friction reduced to a minimum by the working of the sprockets and the open winding of the windlass chain on the shaft, but friction is further reduced by the pulley on the hanger arm of the bucket, through which the windlass chain runs. This is 2½ inches in diameter and runs very smoothly on a ⅞ inch steel axle. The energy you exert in turning the hand-

Detail of Lock and Brake on Beatty Manure Carrier



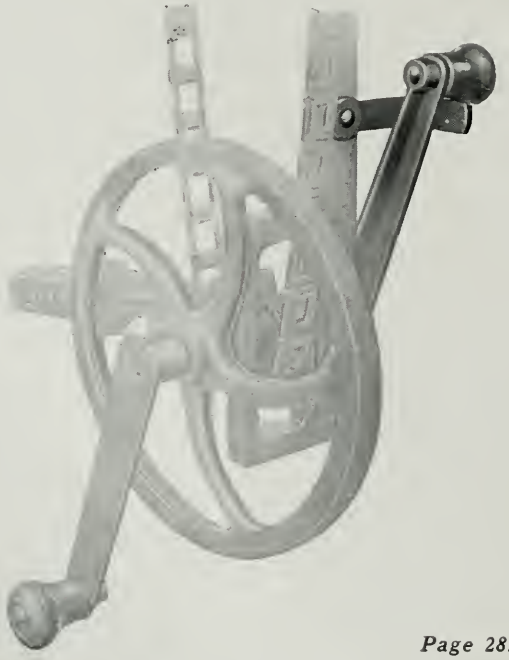
THE LOCK

When you stop windlassing the Beatty Carrier, gravity automatically sets the lock on the outer rim of the handwheel and holds the load at any elevation.



THE BRAKE

By raising the lock and brake lever, the brake is applied to the inner flange of the handwheel, thus checking the downward movement of the bucket. Always reduce the speed by using the brake instead of the lock.



THE SAFETY CATCH

There is a double lock supplied with the Beatty Carrier as shown above. This can be swung out against the inner crank arm.

wheel of the Beatty Manure Carrier raises the load and is not spent in overcoming friction. Any boy can exert 11 pounds pressure on each bundle and can therefore elevate a loaded bucket on the Beatty Manure Carrier. It has the easiest and quickest method of elevation used on any manure carrier

In other makes of manure carriers tested, it has been found that it takes from 40 to 62 pounds pressure to raise 600 pounds in the bucket—the same load that is raised in the Beatty Carrier with only 22 pounds pressure. The reason for this is clear. Some makes have the hand chain wheel directly connected to the winding shaft that elevates the load. With this method they have not half the leverage found in the Beatty handwheel with the two long crank levers and double sprocket.

Other makes of carriers have worm gears. A set of worm gears wastes from 50% to 75% of the power applied. The friction in these worm gears is sufficient to hold the loaded bucket without assistance. Imagine, then, the power wasted in raising the load against friction enough to hold 600 pounds of manure. In such a case, the friction is equal to the weight of the load! The Beatty has won the reputation of being the easiest and quickest to handle—and after all, you buy a manure carrier to save time and labor.

Easy to Push Along the Track

Now that the carrier has been lowered, filled and elevated, the next operation is to push the load along the track out of the stable

The handwheel provides the best means for pushing the loaded carrier along the track. The handwheel is attached to a solid frame which is directly connected with the gearing and track wheels of the carrier. Therefore the pressure is directed to the travelling parts of the carrier, which insures an easy, steady motion along the track. This is especially an advantage in pushing the carrier from stall to stall before it is windlassed up.

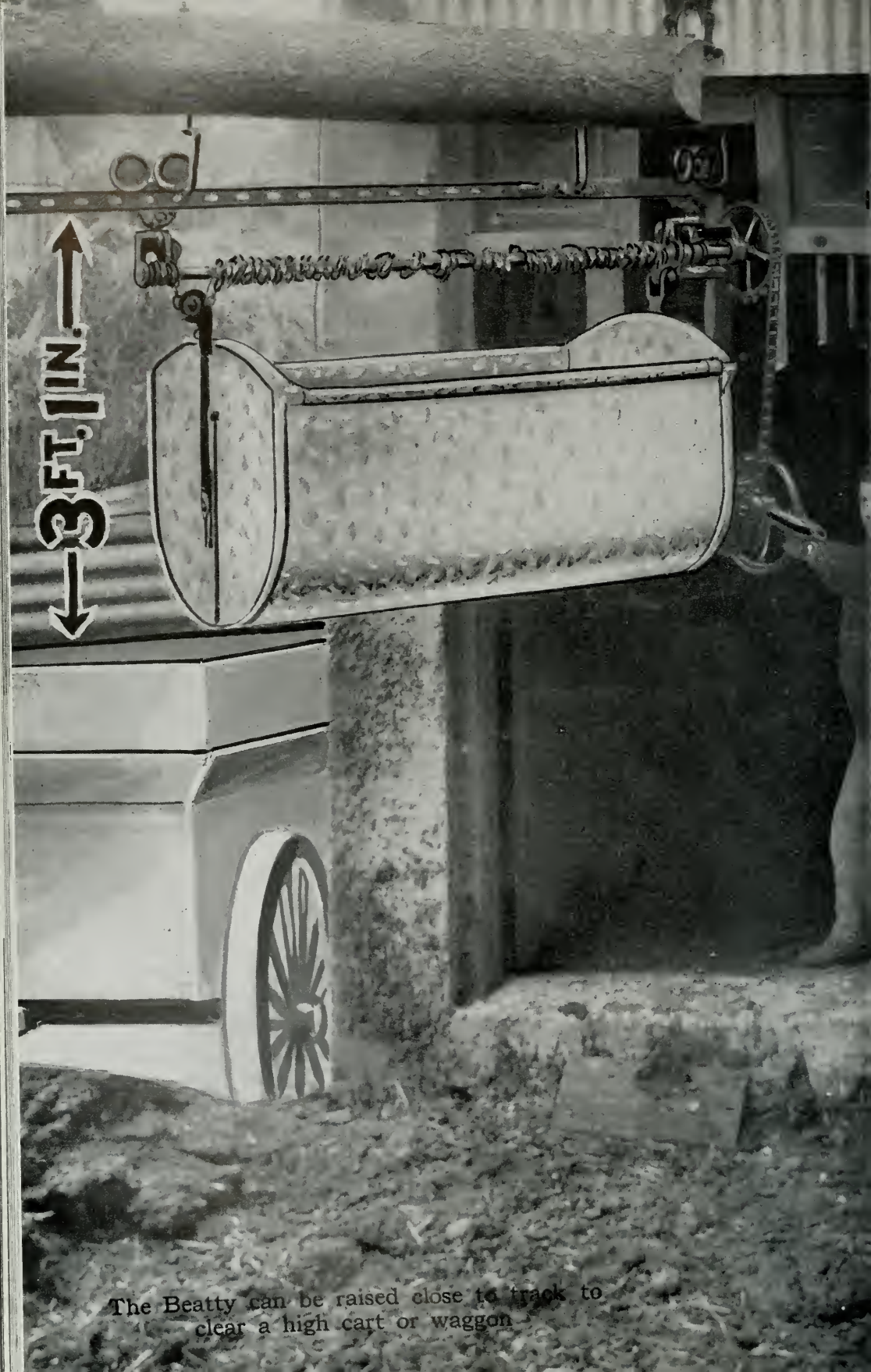
In carriers without a handwheel there is nothing steady or solid on which to push. You must push on the swinging, swaying bucket. In the Beatty Carrier the handwheel is 16 inches behind the bucket. It is away from the manure and always clean; the operator does not have to push the dirty, dung-covered bucket. With endless chain carriers there is always the chance of the chains flopping up against the dirty bucket and becoming covered with muck, which makes them very unpleasant to handle.

The Beatty Manure Carrier has elevated ends which keep the manure from dripping over into the tripping arrangement. Without elevated ends, the manure gets into the trips which control the dumping of the bucket and they soon get out of adjustment.

Easy to Dump and Dumps Both Ways

The Beatty Manure Carrier bucket dumps both ways. This is a distinct advantage over a manure carrier that only dumps one way. It will spread the manure more evenly in the manure shed, on the pile or on the wagon or spreader.

A manure carrier bucket that will only dump one way often has to be turned over by the operator, especially if it is loaded heavily on the opposite side to the side on



The Beatty can be raised close to track to clear a high cart or waggon

which it is desired to dump, or if the wind is blowing hard. In both cases the operator is in danger of getting plastered with manure. A bucket that dumps both ways, like the Beatty, can be operated by a rope on the trip and the operator can stand back several feet from the carrier while the manure is being dumped out of the bucket.

High Lift Feature—Giving Maximum Pile Clearance

Because of the single windlass shaft and compact construction, the Beatty Manure Carrier will lift 8 inches higher than others. It can be windlassed up so that the bottom of the bucket is within 3 feet 1 inch of the bottom of the track. The Beatty Carrier more readily clears the spreader, sleigh or wagon and the manure can be piled higher when it is desired to allow it to accumulate in the yard. The High Lift feature of the Beatty Carrier allows it to pass over pen partitions more easily than less compactly designed carriers.

Beatty Bucket Hanger Arms

When the Beatty Bucket is raised, the position of the hanger arms against the shaft insures rigidity in running and the chain holds them tight against the bucket.

The hanger arms are strong, made of bar steel, with malleable iron brackets for the chain pulleys. The end which attaches to the bucket projects below the hinging point and prevents the bucket from coming unlatched by accident.

The Tripping Latch

The tripping latch is worked by a single pull or push on the trip lever, from either end of the carrier. The spring is made of brass and will not corrode. It is carefully protected from dirt and snow by a galvanized steel cover, well riveted to the side of the bucket.

The bucket is self-cleaning when dumped, being rounded inside, without corners to collect manure.

Lifting Chain Winds in an Open Spiral

Study the illustration on page 288, which shows how the lifting chain of the Beatty Carrier is attached to the centre of the windlass shaft, in such a manner that in winding up it forms an open spiral. The chain does not rub against itself, thus causing wear, for it has the full length of the shaft on which to wind.

The limited winding space on the shafts of some carriers makes it necessary to use a small chain or cable of insufficient strength, and to crowd it so closely that it is continually climbing upon itself, causing rub and wear.

Because the chain is suspended at the centre and both ends, the strain is distributed on the chain and on the shaft. Every lifting chain used in a Beatty Manure Carrier is tested to 12,000 pounds. The sprocket chain is the same size and strength as that used to drive the canvas of your binder.

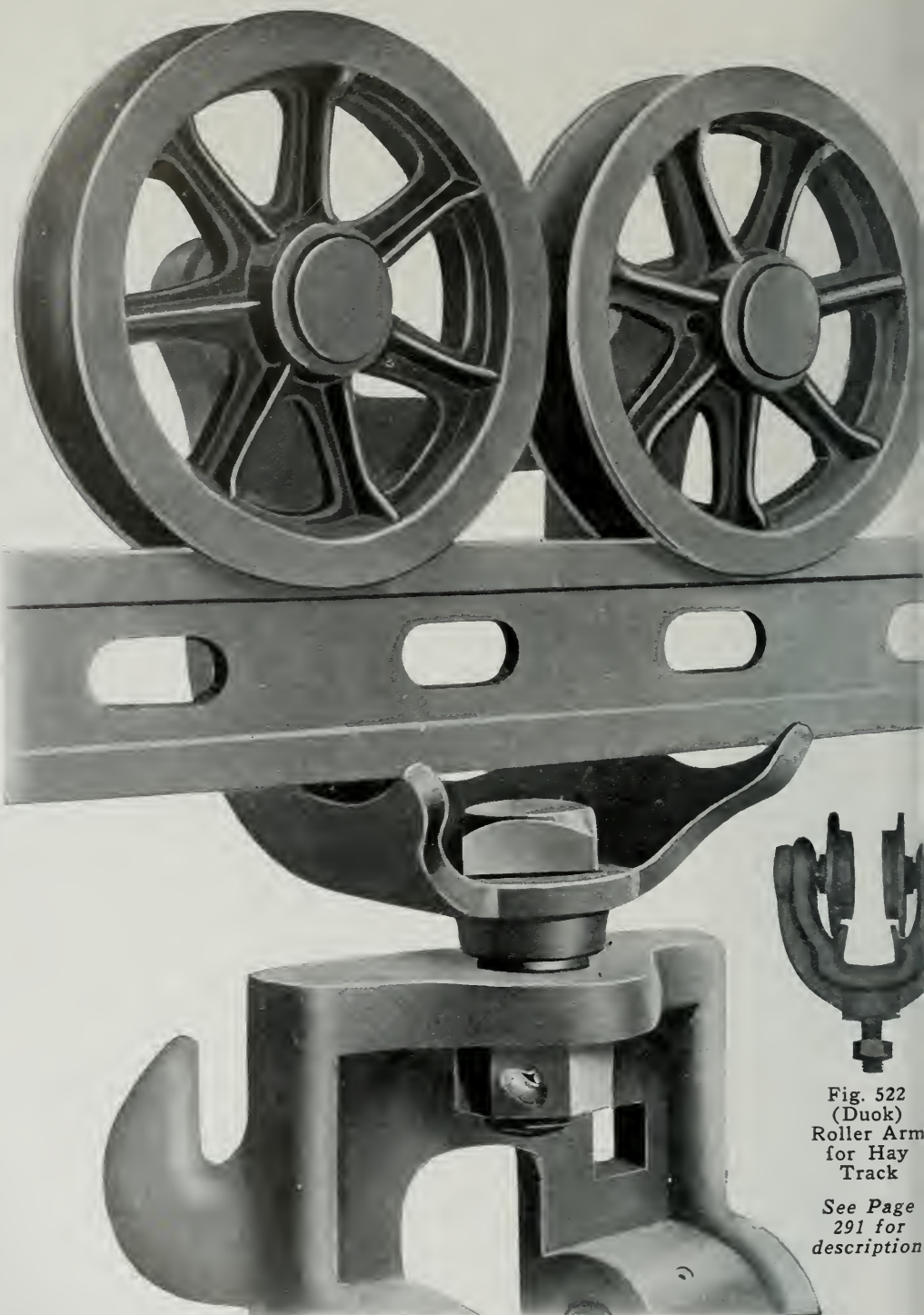


Fig. 522 (Duok) Roller Arm for Hay Track

See Page 291 for description

Double Roller Arm and Track Wheels for BT Track

The Double Roller Arms and Track Wheels

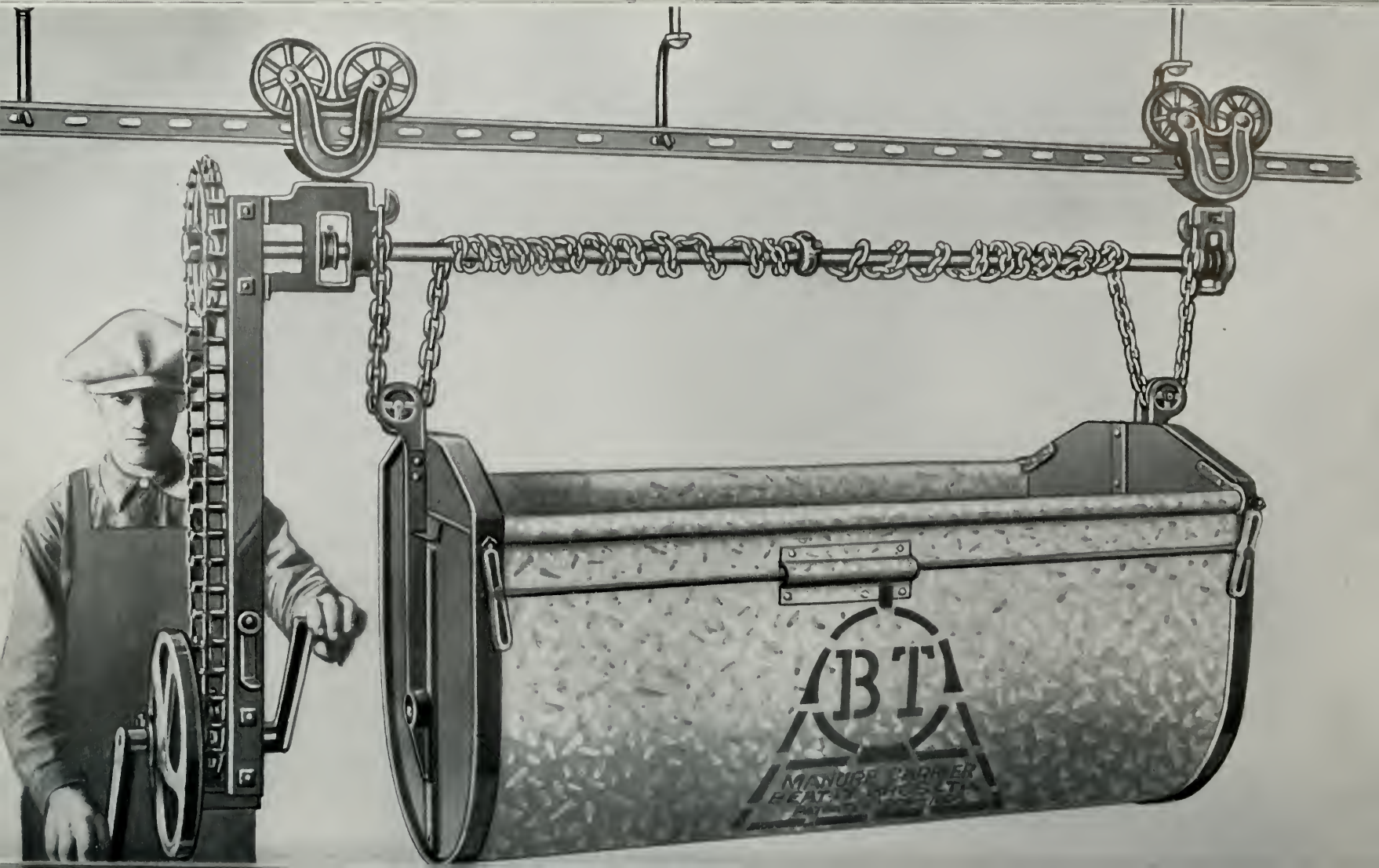
The Beatty Manure Carrier is hung from the track at either end by a malleable iron roller, carrying two track wheels, mounted in tandem. The windlass shaft boxings are held to this roller arm by a ¾-in bolt, which allows the roller arm to swivel. The Beatty Manure Carrier rolls easily on the track. This is due to the design of the double roller arm, as further described below, and also to the design of the track. In the first place, the track stands on edge, giving a limited bearing surface which eliminates track friction and also the possibility of obstruction from dirt and snow. The track wheels are large—4¾ inches in diameter. These roll more easily than small wheels. Further the wheels are carefully machined on the running surface to insure that the wheel is perfectly round and true with the centre of the hub. This insures smooth and easy-rolling wheels. Manure carriers with small wheels that are not machined are hard to push on account of the roughness and unevenness of the wheels.

The track wheels at each end of the Beatty Manure Carrier are mounted on one roller arm and are in tandem This insures smooth and easy running because the weight of the carrier is carried in the centre, between the two wheels, and not directly under the bearing points or axles of the wheels. On carriers with a single wheel, or where the wheels are directly opposite each other and the load carried directly below the axle and bearing point of the wheel, the tendency is for the load to hinge on the axle, and the bottom of the roller arm to be forced up against the track. This binds and causes a jerking motion as the carrier is pushed along. With the double roller arm in tandem and the load hung between the wheels, this hinging and binding tendency is eliminated.

The single swivel roller arm on the Beatty Carrier holds the wheels in alignment. This, too, insures smooth and easy running because it eliminates binding of the flanges of the wheels on the track. The space between the flanges of the wheels is wide enough to allow the track wheels plenty of room to make any curve with ease. Curves should have a radius of not less than 3 feet to make room for the windlass and bucket to go around the curve.Roller arms in which each wheel is separately swivelled have a tendency to bind between the flanges and a zig-zag travel on the track is the result, because each wheel is allowed to swivel independently. The binding of the flanges not only makes the carrier hard to push, but the flanges of the track wheels are more quickly worn and broken off.

The flanges on the wheels of the Beatty Carrier are deeper that the distance between the bottom of the track and the roller arm, so that is is impossible for a Beatty Carrier to come off the track. We have experimented and found that the roller arm with one swivel and wheels in tandem make the carrier much easier to push, with far less track wheel replacement than any other type.

On the Beatty Carrier the track wheel axles are turned steel, the journals being machined and surfaced to size, so that the axles fit perfectly There is an oil pocket around the axle, which distributes the oil evenly, adding to the life of the track wheels and making the carrier run more easily and smoothly The oil pocket is filled through the oil hole in the hub as shown in the illustration on the opposite page.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SPECIFICATIONS

The Beatty Manure Carrier

Wood End—Fig. 52—(Dale). Steel End—Fig.

Bucket—Body is made of 18 gauge, heavily coated galvanized steel, securely nailed and screwed to the wood ends and doubly secured by a band of ⅛ x 1½-inch steel which encircles the ends outside the body sheet. Sides are supported by a rolled edge, 1 inch in diameter, bent around a steel tube. The tube is split and the edges of the sheet are folded and inserted into it. The tube is then fastened securely to the ends of the carrier with heavy malleable clamps. The ends of the bucket are made of well-seasoned 1½-inch white pine, tongued and grooved, reinforced with a heavy steel bar, ¼ x 1½-inch on the outside and a ⅛ x 1½-inch bar on the inside. The ends of the bucket are treated with oil, are given a heavy coat of paint and then varnished.

Steel End Bucket—Same as above, except that the ends are made of 16 gauge sheet steel, which are riveted and soldered to the sides.

Bucket Hanger Arm—⅜ x 1-inch high carbon steel, turned edgewise to bucket. A 2½-inch pulley is provided, carried in a malleable bracket through which the windlass chain runs. The opposite end attaches to the bucket by a heavy malleable casting which forms the hinge.

Tripping Device—Consists of a latch at either end engaging the hanger arms, operated simultaneously by a trip lever at either end. The trips are connected by a rod along the side of the bucket and controlled by a high quality brass spring. Spring is protected by a galvanized shield riveted to side of bucket.

Shaft—1¼-inch cold rolled solid steel shafting, same as used in factories for line shafting. Shaft has bearing of 5½ inches on boxings and ample oil holes are provided.

Lifting Chain—Short link, electric welded, tested chain. Suspended at three points and winds on shaft in an open spiral.

Roller Arms—Heavy, one-piece malleable iron castings, so designed that they cannot come off the track. Shaft boxings are hung from roller arms by ¾-inch bolts, which allow roller arms to swivel when taking a curve. Nut is secured to bolt by steel cotter pin, which goes through both nut and bolt. (Pages 286-7.)

Track Wheels—4¾-inch grey iron, turned true and smooth on lathe. Run on ¾-inch turned steel axles which are provided with oil holes. Track wheels have 5-inch spread on track. Arranged in tandem. (Pages 286-7.)

Windlass—Handwheel type with heavy sprocket chain drive. Fitted with two heavy 9-inch handles, so that both hands can be used at once for raising bucket. Handwheel sprocket has 7 teeth, main shaft sprocket, 21 teeth.

Handwheel Frame—Rigidly supported by ⅜ x 2-inch steel bar, and adjustable to take up slack in sprocket chain.

Sprocket Chain—Composed of malleable, detachable links, ¼-inch in thickness. Has an ultimate strength of 2,260 pounds.

Handwheel—13½ inches in diameter and fitted with two malleable handles, 9 inches long, fitted with wood grips.

Lock and Brake—Made of best malleable iron. It applies the lock to the outer flange of handwheel and brake to inner flange.

Capacity—Bucket No. 1, 48 inches long, 26 inches wide, with a capacity of 12 bushels. Common load weighs about 600 pounds. Bucket No. 2 is 48 inches long, 29 inches deep and 28 inches wide, and holds 16 bushels. No. 2 bucket is usually used for horse barns only.

Weight—With bucket No. 1, 200 pounds. With bucket No. 2, 210 pounds.

Installation Measurements—The overall depth of the No. 1 bucket is 3 feet 1 inch from the under side of the track when the bucket is windlassed up as far as it will go. The overall width of the No. 1 carrier is 2 feet 3 inches; No. 2, 2 feet 7 inches. For turning on a curve, a minimum radius of 3 feet should be allowed on the track. The extreme overall length of the Beatty Carrier is 6 feet 6 inches. The lifting chain is long enough to lower the bucket 3 feet 6 inches. See bottom of page 295 for further measurements.

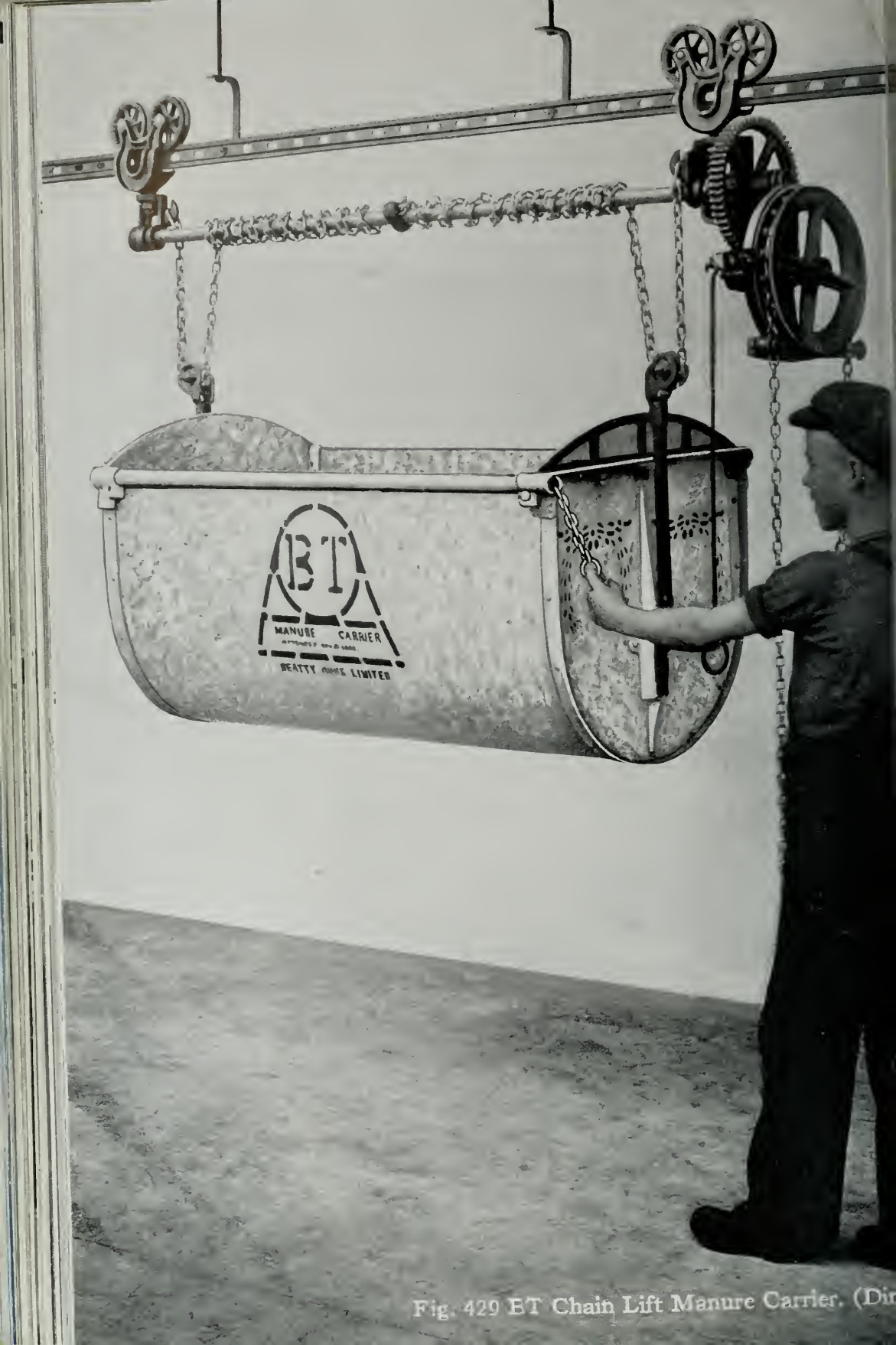


Fig. 429 BT Chain Lift Manure Carrier. (Dir

The Beatty Endless Chain Manure Carrier—Fig. 429
(Dim)

The Beatty Endless Chain Manure Carrier is designed for use in buildings where the ceilings are exceptionally high. For all ordinary cases, we strongly recommend our standard carrier, specifications for which are given on page 289.

In the case mentioned above, the Endless Chain Carrier is preferable. The chain will hang down the necessary distance below the carrier when the bucket is elevated. The construction of the Endless Chain Manure Carrier is similar to that of our standard carrier, Fig. 52, page 289. The only difference is in the construction of the windlass. Specifications are given in full below when they differ from the standard carrier. For specifications covering the parts of which the design is the same, see page 289.

SPECIFICATIONS

Bucket—Specifications are the same as for the standard carrier.

Bucket Hanger Arms—The same as in regular carrier.

Tripping Device—The same as in regular carrier.

Shaft—Same as in regular carrier.

Roller Arms and Track Wheels—The same as in regular carrier. See pages 280-287.

Windlass—It is the endless chain gear type, consisting of a one-piece main frame, main gear, small gear and a hand chain wheel. The chain wheel turns the small gear which, in turn, drives the large gear. The large gear is fastened directly to the windlass shaft, on which the lifting chain winds. The main gear has 60 teeth and small gear 15.

Chain Guides—Guides with pulleys, one on either side, guide the chain and keep it on the chain wheel.

Lock and Brake—Made of best malleable iron and controlled by a handle.

Capacity—Same as regular carrier, wood or steel ends.

Weight—200 pounds.

Installation Measurements—The overall depth of the Beatty Endless Chain Carrier is 3 feet 1 inch from the under side of the track, when the bucket is windlassed up as far as it will go. The overall width of this carrier is 2 feet 3 inches. A minimum radius of 3 feet should be allowed on the track for turning a curve. The extreme overall length of the Endless Chain Carrier is 6 feet.

The Beatty Can be Supplied for Other Makes of Track

There is a demand for the Beatty Carrier to run on old tracks already in the barns, to replace old carriers that have worn out. We can equip the Beatty with roller arms to suit any make of track now in use. Last year we supplied over 50 carriers to replace old carriers of other makes. The illustration on page 286, Fig. 522, shows one of the types commonly used for old hay tracks. It is better to tear out the old track and put in a complete new Beatty outfit, which will be more satisfactory in the long run. In cases where the old track is in good repair, a new Beatty bucket and windlass can be supplied to run on it and will prove to be a handier and better outfit than the old one.

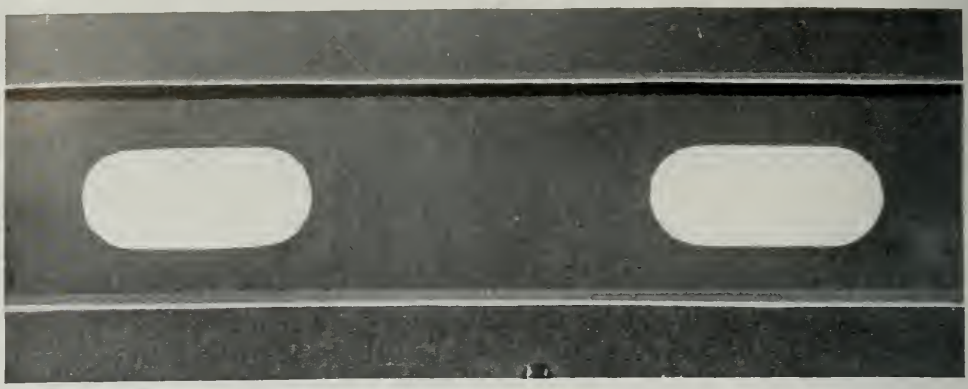


Fig. 217—BT Manure Carrier
Track, Actual Size (Dunner)

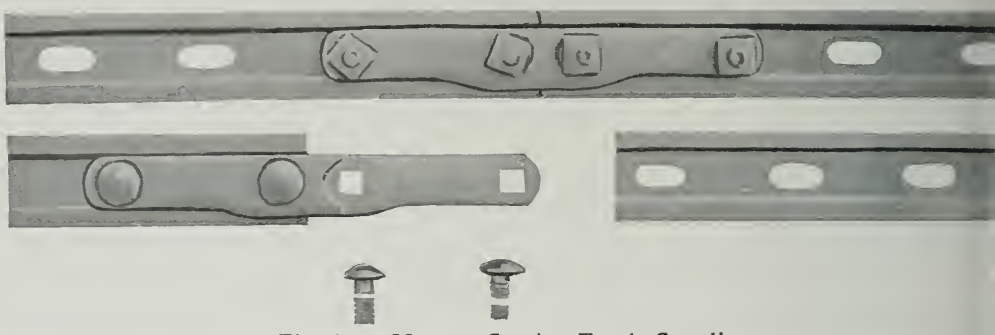
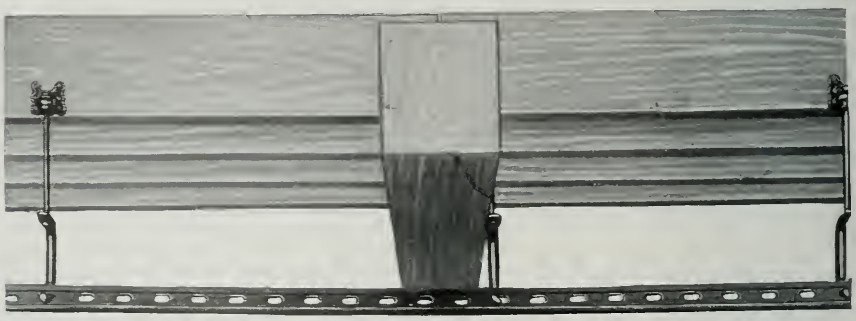


Fig. 214—Manure Carrier Track Couplings
(Dora)



BT Track Passing under Beam

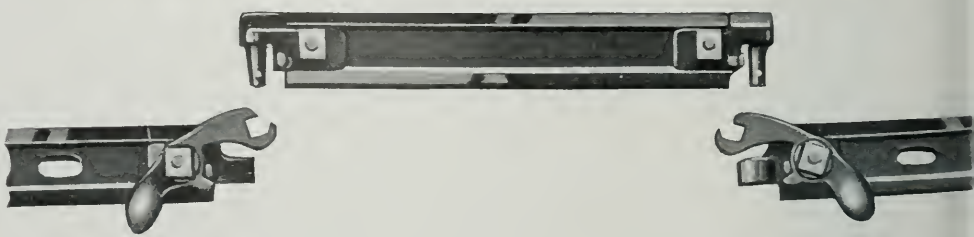


Fig. 436—Removable Track Section for Manure Carrier Track (Dirt)

The Beatty Manure Carrier Track—(Patented

Beatty Track was developed specially for a manure carrier or other overhead conveyor work. If you will examine the illustration of the track, Fig. 217, on the opposite page, you will see how splendidly suited to this work it is.

Strength of the Beatty Track

Beatty Track is a full 2 inches deep. It is hung on edge so that every ounce of material supports the load. It is shaped like the I-beams used for girders on steel bridges and sky-scrapers. Railroad rails are built on the same principle.

The principle of I-beam construction is just this—Bend a piece of iron or a green gad the same way as an overload would bend it. The top will wrinkle and the bottom pull apart, showing that the strain comes on the top and bottom in the form of compression and tension. The top flange of the I-beam takes care of the compression and the bottom flange of the tension. The I-beam is the strongest shape into which steel can be formed for carrying loads. The flanges and great depth of the Beatty Track stiffen it to withstand the heavy weights that it must carry. Beatty Track, with hangers every 3 feet, will never spring or sag and cause low places which make the carrier hard to push.

Beatty Track Does Not Collect Ice

Beatty Track offers a surface only $\frac{5}{16}$-inch wide on which snow or ice can collect. The track is rounded, as will be seen from Fig. 217 on the opposite page. There is never any need to melt and scrape snow and ice off the Beatty Track. The rounded surface of the track causes practically no friction and allows the carrier to run easily and quietly. A flat track gives constant trouble. Snow, ice and dirt collect and have to be scraped off continually.

Easily Erected—See Page 302

Any one can put up the Beatty Track. It is supplied with holes punched every 3 inches. The hangers simply button on. The illustration on page 294 shows how the ends of the hangers are inserted in the holes in the track and then just turned up into place. It's as easy as slipping a button in a button hole. The nailing plate is then slipped through the top of the hanger, turned to the position desired and nailed to the joist.

The best of high carbon steel is used in Beatty Track. It can be bent to any curve desired when it is being put up in the barn. No special curves need to be purchased and no heat is required for bending. See page 302. There are no little stove bolts to tighten when erecting Beatty Track. Tightening these takes time. Also the nuts are continually working loose and shaking off, making it necessary to tighten them.

Beatty Track Not A Hay Track

Some firms use the same track for their manure carriers as they do for their hay carriers. This is bound to be unsatisfactory. A hay track does not have to be bent into curves nor branched off into half a dozen different passages. It is not hung in one place a foot below the point of support and in another only eight inches. It does not have to run out into the yard where it is exposed to snow and ice Yet, a manure carrier track has to do all these things. It is obvious that the two cannot be interchanged successfully. We manufacture three different tracks for hay carrier work, which we could have used for manure carrier work, had we thought it advisable. We preferred to design a special track to meet these special needs.

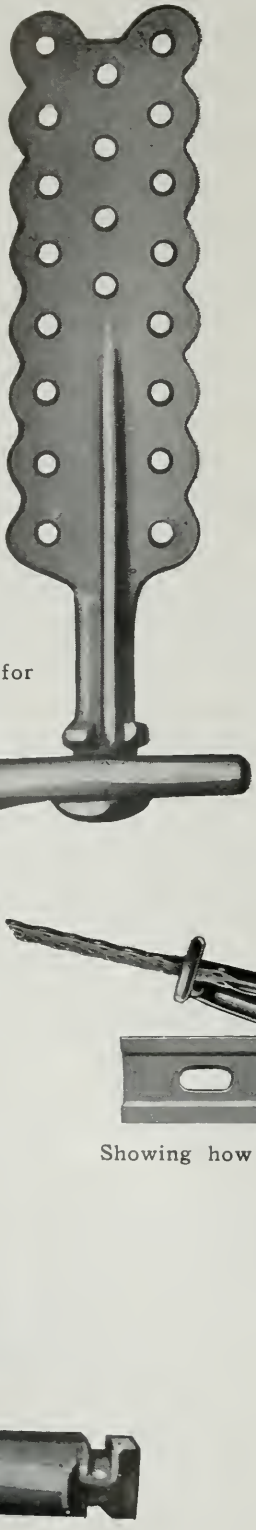
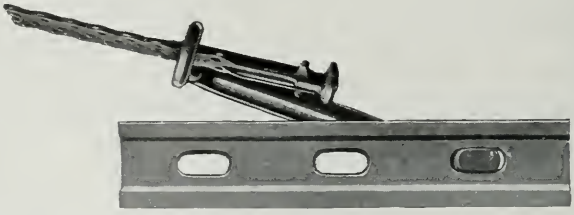


Fig. 210
Swivel Hanger for
BT Track
(Delta)

Fig. 734
Pole Hanger
(Dog)

Fig. 136
BT Track Hanger
with Plate for
Nailing to Ceiling
(Dong)



Showing how Hanger Buttons on Track

Fig. 215
BT Extension
Hanger

Joint Clips—Fig. 214—(Dora)

Fig. 214, page 292, shows the heavy joint clip or track joint used to bolt the sections of the Beatty Track together. Note the unusual length and also the fact that four bolts are used, thus making an unusually strong splice. The track is perfectly strong and rigid at the joints.

Removable Track Sections—Fig. 436—(Dirt)

The liftout, Fig. 436, page 292, is used to permit the closing of sliding doors or where two tracks cross. It is fitted with two safety catches that spring up and block the ends of the track, when the liftout or removable section is removed.

Beatty Hangers—(Patented)

The ease with which Beatty Track can be erected is due, in large measure, to the design of the hangers. The Beatty Track, with its holes every three inches for the hangers, and the simple button-on hangers themselves, cut in two the time taken to erect an outfit, since no bolts, nuts or wrenches are required. The bottoms of the hangers simply button in the track. It's as easy as slipping a button in a button-hole. Both these features are carefully covered by patents. Beatty Hangers hold the track perfectly vertical, solid and secure: there is no danger of it twisting over. The bottoms of Beatty Hangers are made of forged steel and are designed so that the centre of the nailing bracket is exactly in line with the centre of the track and the centre of the load. The types of hangers required to fit any barn are shown on the opposite page.

The Beatty Swivel Hanger, Fig. 210, consists of the hanger bottom and long nailing bracket. The nailing bracket swivels so that it can be attached to the joist, no matter at what angle the joist may be in respect to the track. It allows a variation in the ceiling of from four to six inches, depending upon whether the joists are round-faced or square. The Beatty Extension Hanger, Fig. 215, is used to suspend the track at any required distance below the joists, when it is necessary for the track to go under girders or beams. The use of the hanger is illustrated in the photo on page 292. The rod is provided with a long thread, which allows the level of the track to be adjusted exactly. The Beatty Pole Hanger, Fig. 734, is used to attach the track to either steel or wood swing pole. The rod goes through the pole and is fastened at the top by the nut and washer. The Beatty Ceiling Hanger, Fig. 136, is supplied with a flat plate instead of a nailing bracket. It is used when the stable is ceiled. The plate is attached to the ceiling by two screws.

Installation Particulars—The Beatty Manure Carrier Track may be suspended 4¾ inches below the under side of the lowest beam or girder. This is the minimum space through which the track wheels will pass. In some cases, a low-hanging beam can be nicked a few inches to allow the wheels to go through, and the track thus kept a little higher. The Beatty Swivel Hanger, Fig. 210, is 13½ inches long overall. The long nailing bracket will allow for a suspension below the joists of 6 inches with square sawn, and 4 inches with round-faced rafters.

The Beatty Extension Hanger, Fig. 215, consists of a hanger bottom, extension rod and nailing bracket. It is used to permit the track to pass under girders or beams. Thus if the girder or beam—see illustration page 292—were 8 inches deep below the joists, specify hangers with extension rods 10 inches long for square-sawn joists and 12 inches long for round-faced joists. The extension rod in the first case must be 2 inches longer and in the second case, 4 inches longer than the depth of the beam under which the carrier must pass. When ordering Pole Hangers, Fig. 734, state whether swing pole is wood or steel, and if for a second-hand steel pole, specify depth of pole.

No end stop is required for Beatty Track. Hangers are all placed on one side of the track to allow the track wheels to pass. The end hanger is placed on the opposite side and serves as a first class end stop. Hangers should be placed 36 inches apart, with an extra hanger in the middle of every curve.

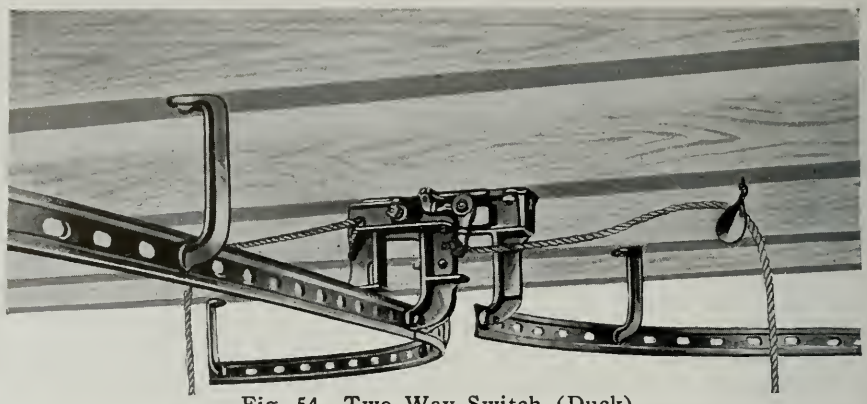


Fig. 54—Two Way Switch (Duck)

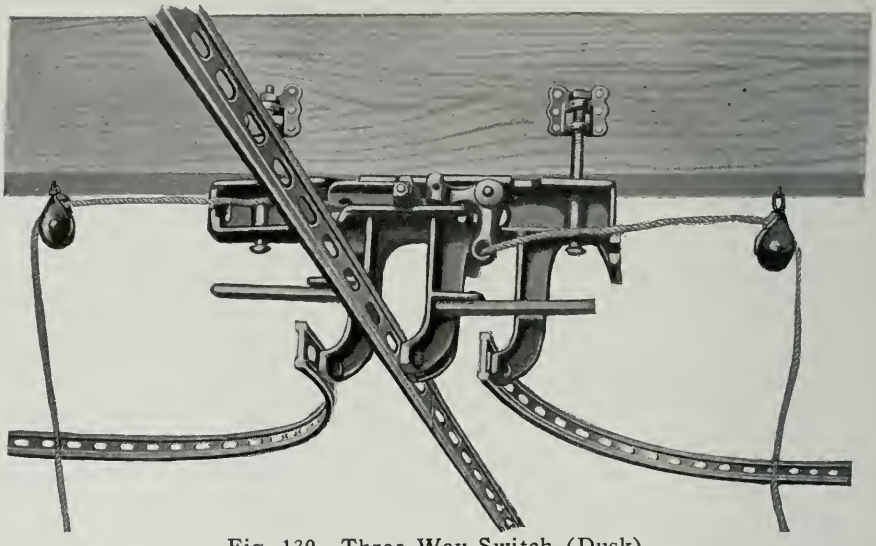


Fig. 130—Three Way Switch (Dusk)

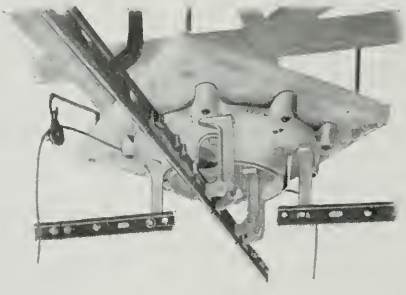


Fig. 209—Cross Switch or Turntable
(Duet)

Operating a Platty Two-Way Switch

Beatty Switches

Most Barns need at least one switch. By the use of Beatty Switches the track is branched off into any part of the building. By means of Fig. 54, opposite page, the carrier can be branched off into either one of two, and by Fig. 130, into either one of three, directions.

Beatty Switches lock solidly in position and the track cannot be moved out of alignment by accident. The switch will only lock so that the track ends are opposite. The moving section of the track is automatically prevented, by the construction of the switch, from going past the section of track on the other portion of the switch, on which the carrier is to run. Another great advantage of the Beatty Switches is that they automatically block the open ends of the track. There is no danger of the carrier running off at an open switch.

Beatty Switches are reversible. That is, the moving leg can be changed to either side of the switch to accommodate the track. Switches are furnished complete with pulleys and cords to operate them.

Weights: Two-way Switch, Fig. 54, 25 pounds; Three-way Switch, Fig. 130, 33 pounds. For installation of Beatty Switches, see page 303.

The Beatty Turntable—Fig. 209

(Duet)

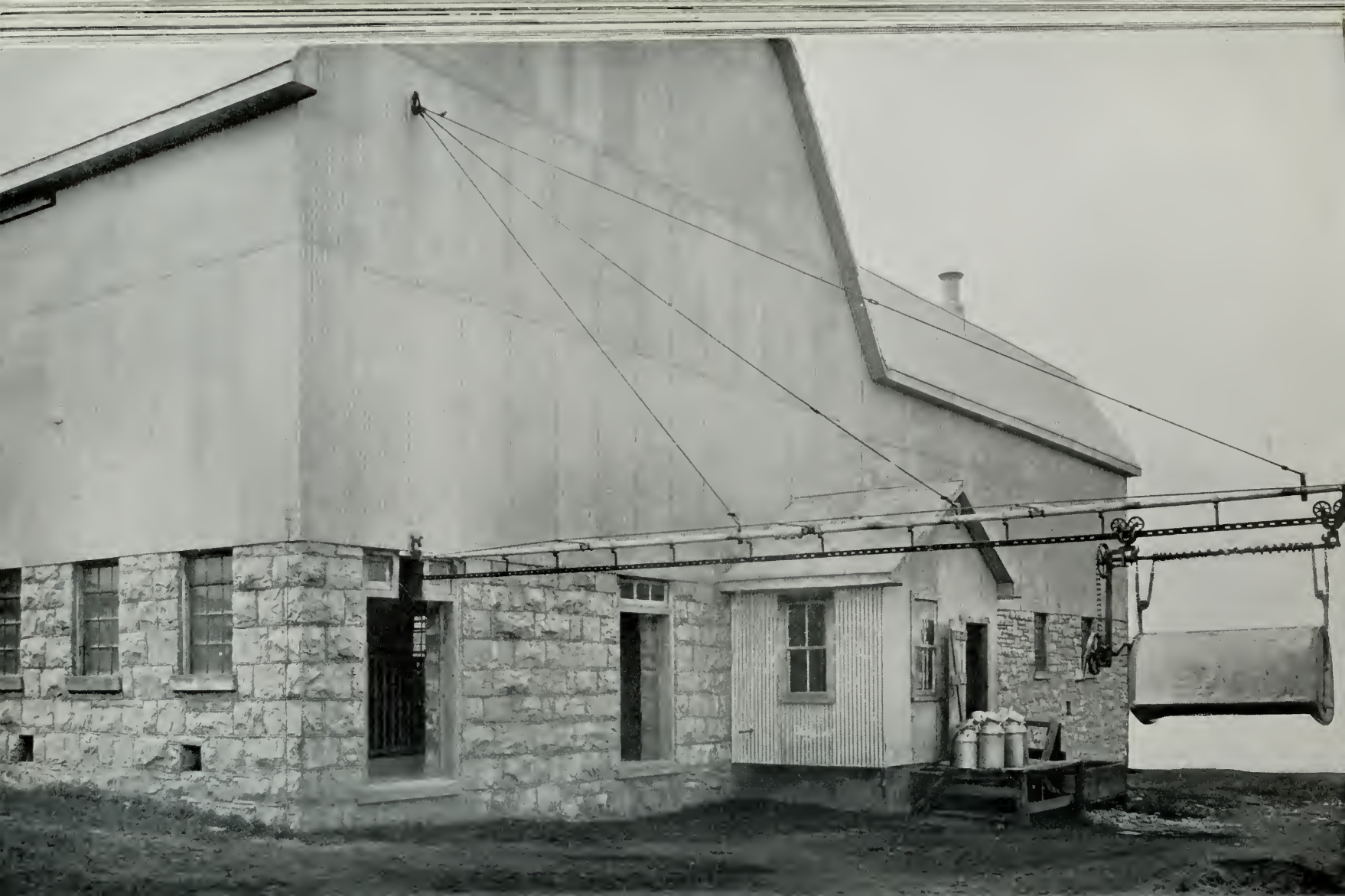
The Beatty Turntable or Cross Switch is usually used where a feed carrier track crosses a manure carrier track. A small section of track in the centre revolves and completes the line of track over which it is desired to run either carrier.

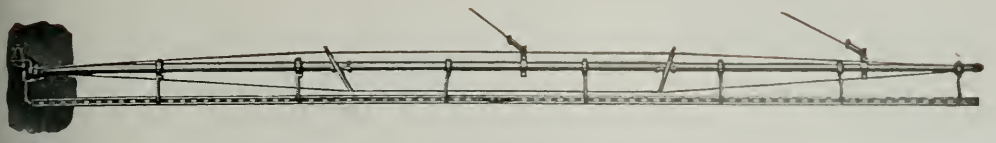
The open track ends are automatically blocked by the casting that revolves. The carrier cannot run off at an open track end. The movable section is prevented by stops on the stationary ends from swinging past the proper point.

The Beatty Turntable consists of a heavy cast metal frame, mounted on a heavy wooden block, malleable arms to support the movable section and four short lengths of manure carrier track.

There is no adjusting to do. The Turntable comes ready to erect in the stable. The adjustment between the movable section and the stationary ends is carefully made in the factory. All that is necessary is to fasten it in place against the support overhead, and fasten the track to the four ends sent with the turntable.

Weight complete, 75 pounds.





The Beatty Steel Swing Pole—Fig. 208

(Datty)
(Patented)

With a Beatty Steel Swing Pole the manure can be carried out and dumped where required in the yard. The swing pole abolishes entirely the manure pile close to the barn, giving off ammonia fumes and breeding germs and flies Practically all cities now have bye-laws covering the conditions on which milk may be shipped in for city consumption. Invariably, one of these conditions is that the manure must be kept well away from the barn.

A 30-foot swing pole will give a greater dumping area than a straight rigid track, running out 100 feet from the stable. When it is necessary to drive close to the barn with a load of hay, the pole may be swung back against the barn to either side. When the manure is dumped in the yard, every manure carrier outfit should have a swing pole.

We recommend the steel pole. It will not rot, and comes from the factory ready to set up. There is no work in finding and cutting a wood pole, trimming it to size and making it ready for use.

There is very little difference in cost between a Beatty Steel Swing Pole and a good wood pole. The difficulty of finding a good swing pole is no longer an objection to putting in a Beatty Manure Carrier.

If a wood pole is used, use cedar, ash, or almost any other good material. It will last for years, if kept painted. Swing poles up to 45 feet in length can be used. They should be not less than 10 inches to 12 inches in diameter at the butt, running to 4 inches or 4½ inches at the small end and carrying their size pretty well through. The length of the pole that can be used depends on the height of the posts in the barn. The height of the barn posts should be approximately one-third the length of the pole.

Specifications—Beatty Steel Swing Pole

Made of the best solid steel tubing, extra heavy, D grade, galvanized, 2⅜ inches outside diameter, connected by heavy malleable splice clamps. ⅜-inch truss rods keep the pole strong and rigid.

Sufficient ½-inch guy rods are supplied, as shown in the table below. A steel swing pole of any length up to 45 feet is practical, providing the barn posts are as stated above. Built in the following lengths: even multiples of 5 feet from 10 feet to 45 feet.

Length of pole	No. of guy rods	Minimum vertical distance from butt of pole to guy rod bracket
10 feet	1	6 feet
15 "	1	6 "
20 "	2	8 "
25 "	2	10 "
30 "	3	12 "
35 "	3	12 "
40 "	4	14 "
45 "	4	16 "

Steel Swing Pole includes the necessary guy rods, guy rod bracket, pole hinge, Standard Track Hinge, Fig. 124, and clamps to secure the hangers. Detailed description of these different swing pole fittings will be found on pages 300-301.

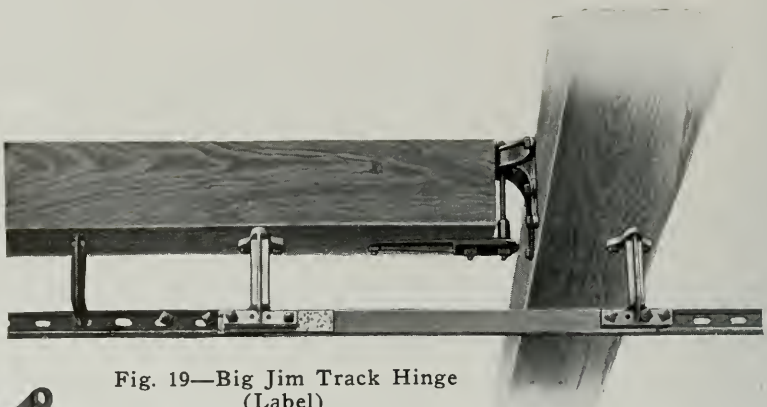


Fig. 19—Big Jim Track Hinge
(Label)

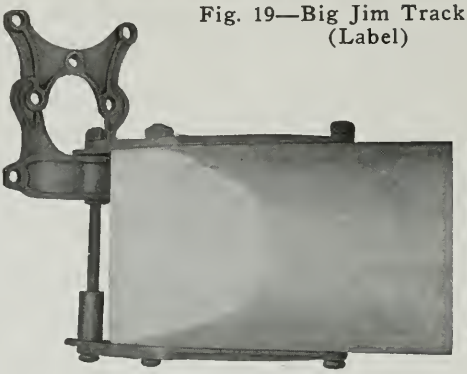
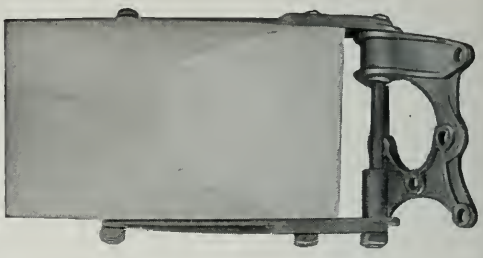
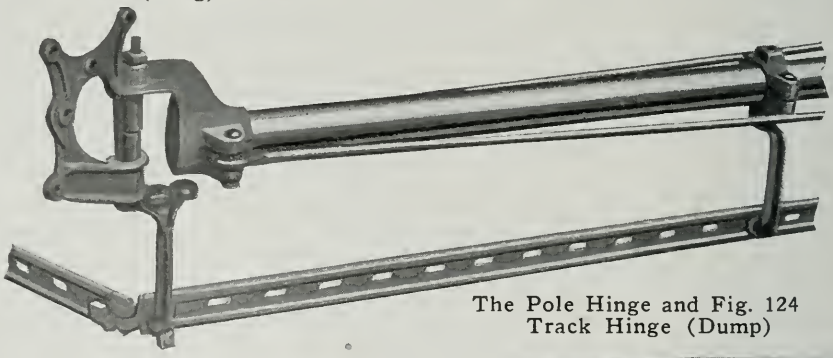


Fig. 131—BT Complete Swing Pole Hinge
(Drag)



BT Pole Hinge Reversed



The Pole Hinge and Fig. 124
Track Hinge (Dump)

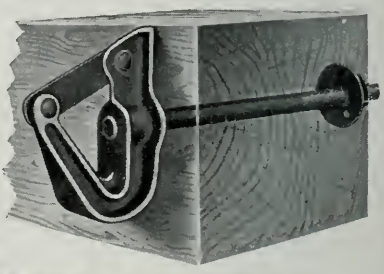


Fig. 516
BT Bracket for Guy Rods (Duol)

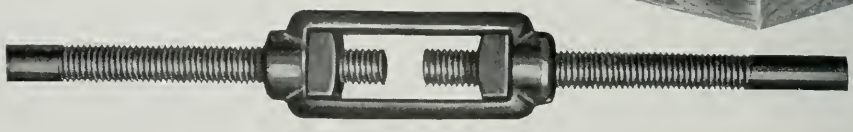


Fig. 239—Coupling for Guy Rods

Beatty "Big Jim" Track Hinge—Fig. 19—For Swing Pole—(Label)

The Big Jim Track Hinge, Fig. 19, is made of three 30-inch lengths of 2 x ⅛-inch spring steel, galvanized. It fits into a 34-inch space. It is made the full depth of the track, 2 ins., and furnished with two special hangers. It is very simple to erect. The object of a track hinge is to permit the swing pole to be swung to different positions in the yard, for greater dumping area. With the Big Jim Hinge the pole can be swung to any angle up to 60 degrees, either way and anchored. The carrier can be pushed out over the hinge which is bent in the form of a curve according to the angle of the pole. This hinge is as strong and substantial as a curve in the track. No matter how often the pole is moved from side to side the hinge forms a perfect curve, either way, without kinking or getting out of order. If it is desired to swing the pole against the building, one end of the hinge can be quickly disconnected. A spring steel hinge is as strong and rigid as the track itself and far superior to sectional or knuckle joint hinges. The strong, heavy malleable hangers furnished at each end of the hinge receive all the strain that may come with the swinging of the pole, thus guarding the switch and hangers in the barn.

Beatty Standard Track Hinge—Fig. 124—For Swing Pole (Dump)

Fig. 124 should be used only when the pole is intended to remain in a central position when the load is being run out.

Because of the shape of the Beatty Track, and the excellent high carbon steel used in it, outfits are sometimes installed without a hinge. The track can be bent at a reasonable angle to cover a limited dumping area.

Beatty Swing Pole Hinge—Fig. 131—(Drag)—(Patented)

The Beatty Swing Pole hinge consists of a heavy malleable iron supporting bracket, which is attached to the building with lag screws or bolts, and two malleable straps which bolt to the pole, also the necessary bolts and coach screws.

The pole hinge bracket must be securely fastened to the door lintel above the door, or to the plate of the barn, if they are in the right position to receive the pole. Otherwise, a plank should be suspended from the sill or lintel and the pole hinge secured to it with ½-inch bolts.

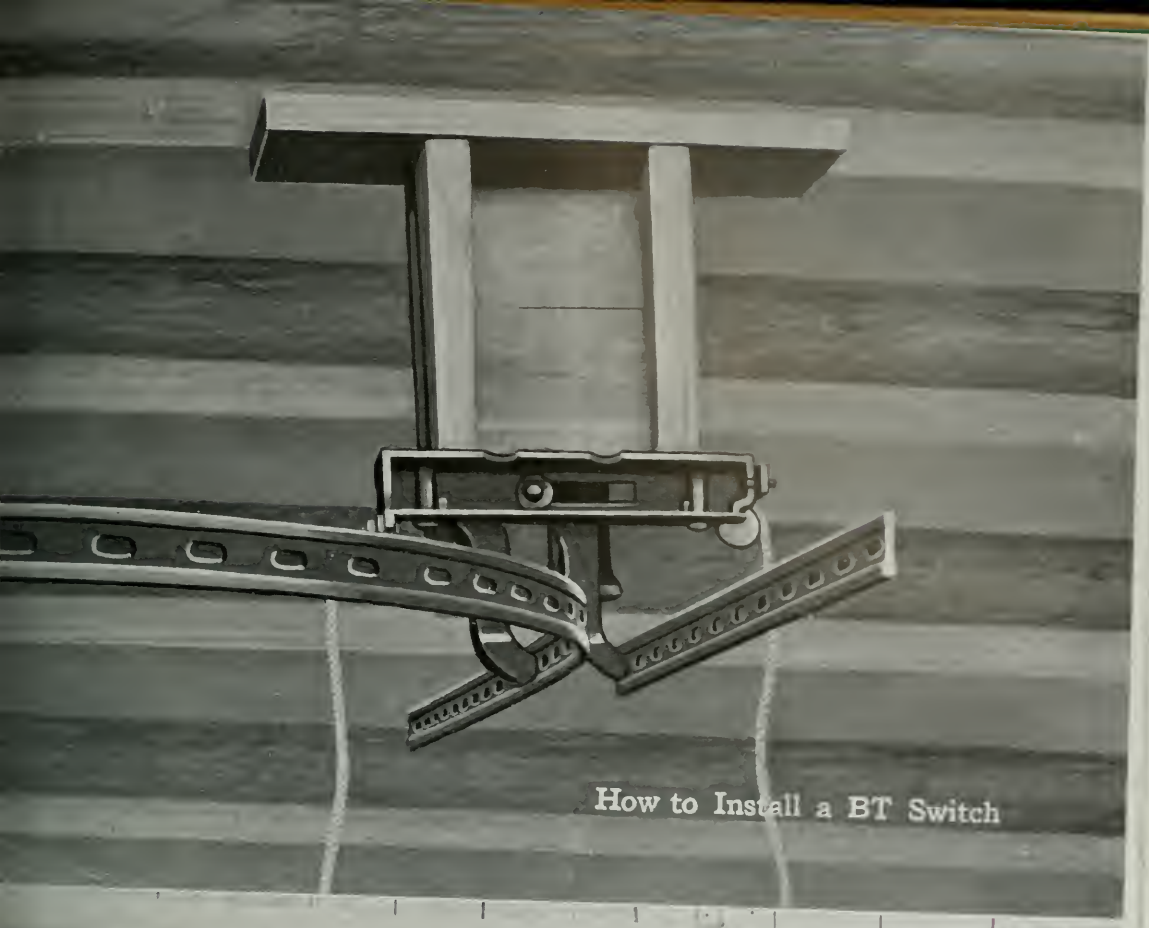
The Beatty Swing Pole Hinge, shown in Fig. 131, is used with wood poles and with the bolts supplied will take poles nine inches deep at the butt end.

The Beatty Swing Pole Hinge can be attached to the lintel of the barn in either one of two ways, as illustrated on the opposite page, depending on the position of the pole and the position of the sill or lintel in the barn.

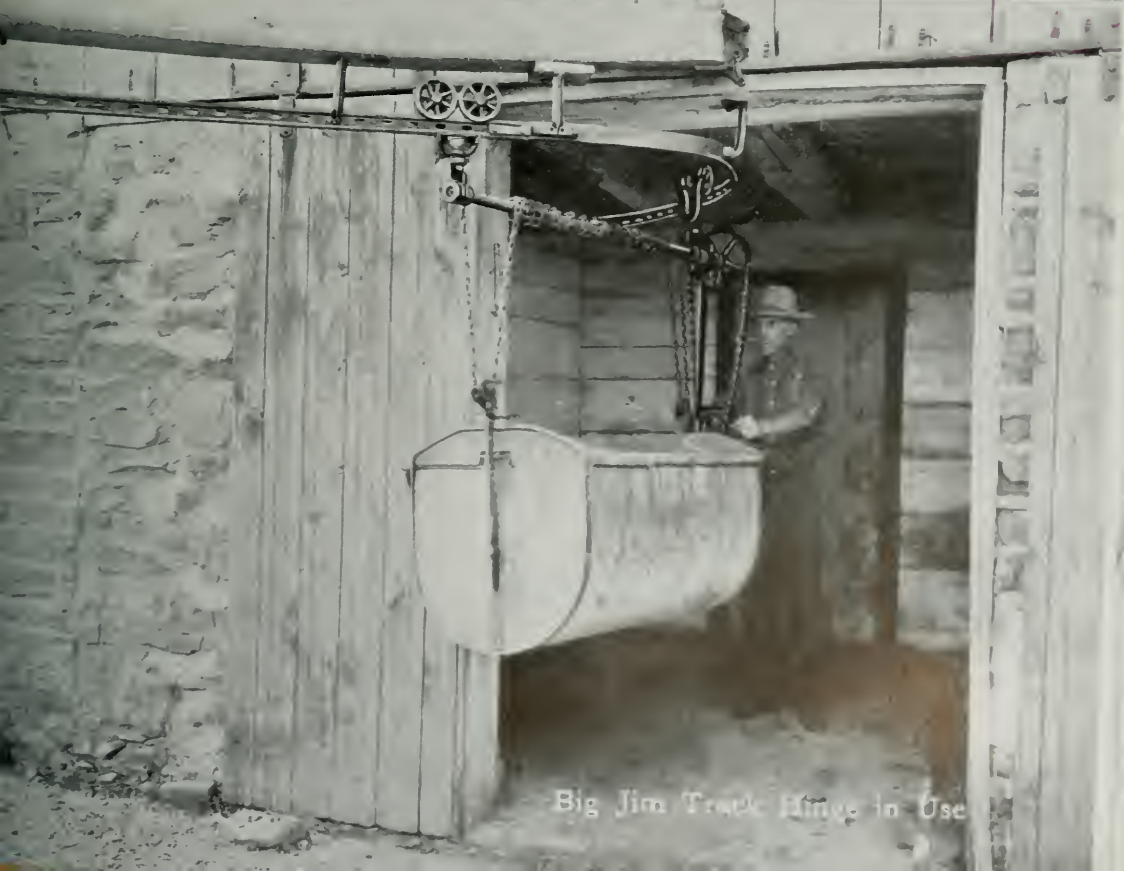
The Beatty Guy Rod Bracket—Fig. 516—(Duol)

Fig. 516 is made of steel and malleable iron and furnished with a long ¾-inch bolt to go through the plate of the barn, as shown on the opposite page. Bolt the guy rod bracket in place on the barn first, then place the eyes of the guy rods over the hook of the bracket, then bolt the guard in place on the bracket. This type of Guy Rod Bracket is greatly superior to the open hook. Guy Rods are made of ⅝-inch steel and furnished with coupling, as shown in Fig. 230.

No Special Curves are needed to erect the BT Track

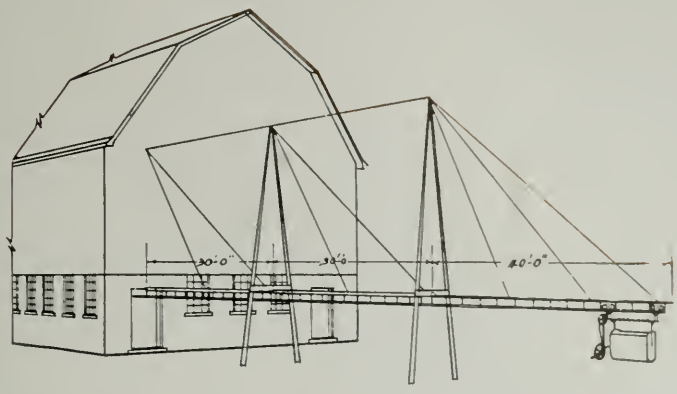


How to Install a BT Switch



Big Jim Track Hinge in Use

Beattie Piped Clamp—Fig. 533—(Dome)



The Biped—or "A" Poles

It is frequently necessary to have the manure pile at too great a distance from the barn to reach it with an ordinary swing pole. In this event, the track is carried to a convenient distance, on an overhead beam, as shown on the opposite page. At this point, two inclined posts are placed, known as a Biped, or "A Poles", as shown on the opposite page. At the required distance above the ground, two horizontal planks should be bolted, one on each side of the poles, to carry the swing pole on one side; on the other side, the beam which supports the track.

The poles come together at the top, and are held together by our Biped Clamp, Fig. 533, as shown in inset on the opposite page. This Biped Clamp serves a double purpose. It holds the tops of the two poles together. It also carries the brace rods that support the swing pole and the brace rod that braces the ends of the biped poles to the barn. For hinging a pole and track on a biped, the same pole hinge and track hinge are used as shown on page 300.

The Biped Poles should be not less than 4½-inch in diameter at the small end. They should be not less than 8-ft. apart at the bottom and should go about 4-ft. in the ground. Two pieces of good cedar should be nailed one on each side of the pole at right angles to the bottom of each of the poles. These pieces should be about 2-ft. long and weighted with heavy stones. This will prevent the leverage caused by the weight on the end of the swing pole from lifting the poles out of the ground. Sometimes these pole anchors are nailed across from pole to pole.

The swing pole can be placed on the biped up to 40-ft. from the barn, if one biped is used or 80-ft. with two bipeds. The overhead beam which supports the track between the barn and the biped is supported with guy rods from the barn. This leaves the yard clear of posts.

A swing pole up to 40-ft. in length can be swung from the biped as shown on the illustration. The biped should extend above the pole hinge 14-ft. for a 30-ft. pole or less and 16-ft. for a 40-ft. pole. The rod bracing the biped to the barn should be not less than ¾-inch. Two brace rods should be used to support a 30-ft. pole or less and 3 brace rods for a 40-ft. pole. The beam between biped and barn should be supported by one brace rod up to a 30-ft. span and 2 brace rods for a 40-ft. span. As shown in the drawing above two bipeds may be used and the manure carried 100-ft. from the barn. The advantage of this construction is that the manure pile can be placed up to 100-ft. from the barn with an absolute minimum of posts to obstruct the yard.

Always brace from the barn out. Never brace from the bipeds back towards the barn. All guy rods other than those which brace the end of the biped are ½-inch.

Outside Steel Construction for Milk Can Conveyor or for Manure Carrier to Manure Pit

Bracket Bracing, Barn of L. A. Abbott, Clover Bar, Alta.

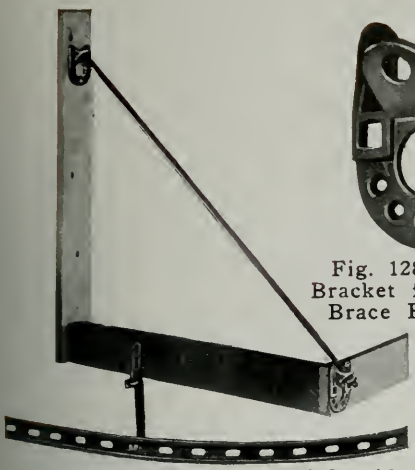


Fig. 132—Construction of Outside Bracket in wood

Fig. 128—Outside Bracket for attaching Brace Rods (Duty)

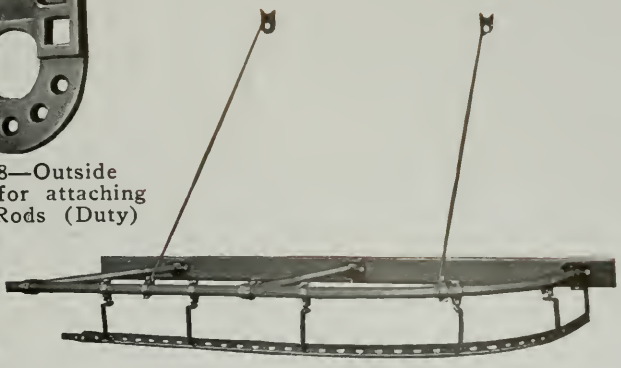


Fig. 306—Construction of Outside Bracket in steel (Spoke)

Bracket Bracing—Fig. 132

The lower illustration on the opposite page shows how Beatty track can be bracketed outside the barn from door to door in order to pass from one row of stalls to another. This system is sometimes used to dump the manure direct into the spreader or sleigh and haul it off to the field.

The bracket may be constructed of wood as illustrated in Fig. 132 above. The frame that supports the track is made of 2 x 6 scantling with 2-in. x 4-in. studs 4-ft. long running from it to the side of the barn every 6-ft. Track should be 4-ft. out from the barn.

We supply the ½-in. brace rods and malleable iron brackets necessary for this construction. Two brackets, Fig. 128, are used with every rod as shown in Fig. 132. The rods should be spaced so that they are 6-ft. apart. The track is attached to the wood frame work by the use of the ordinary swivel hangers, Fig. 210, as shown on page 294.

Steel Bracket Bracing—Fig. 306

(Spoke)

We supply bracket bracing for side of barn made of steel tubing instead of wood. This looks neater and lasts longer, than wood. Exposed to the weather the wood bracket construction gets alternately soaking wet and then dried out in the hot sun so that it is not long before it starts to pull apart at the joints and need repair.

Specifications—Frame or support for carrying the track is made of 1⅞-in. outside diameter steel tubing, braced by studs of 1⅞-in. tubing every 6-ft. Studs run back and are attached to the barn by clamps. ½-in. brace rods every 6-ft. support the entire frame. These are attached to the barn with outside brackets, Fig. 128, as shown above. Clamps attach the rods to the steel frame work. Fig. 306 construction is galvanized.

Outside Steel Construction—Fig. 430

(Datter)

The illustration at the top of page 306 shows how to support the track when run a great distance from the barn. Steel arches are placed 12-ft. apart and support a steel beam to which the track is attached by means of hangers with malleable clamps. This construction is very neat, takes up little space and is much more durable than wood.

Specifications—Arches are made of 1⅞-in. outside diameter galvanized steel tubing. Steel beam which carries track is made of 2⅜-in. outside diameter steel tubing. Clamps are malleable and bolts are ½-in. Fig. 430, construction is galvanized throughout.

BT
BEATTY BROS
LIMITED
FERGUSON
CANADA

Feed Carrier, one end sloped
Fig. 236

BT Floor Feed Truck—Fig. 281

A Feed Carrier Saves Time and Labor

Feeding has to be done regularly. Some feed twice, others three times a day. Regularity in feeding is one of the most important points in raising livestock. Since this work of feeding has to be done regularly and done every day, a feed carrier is a most profitable investment, particularly when so much cut feed and ensilage is being used. This comes down into the feed room in one place and has to be carried from feed room or silo to the farther end of each passage.

A handy feed carrier as illustrated on the opposite page will save time, labor and feed. The system of overhead tracking for the manure carrier can be extended down the feed passages and to the feed room, root cellar or silo at a small expense. This system will save enough time and labor to pay for itself quickly.

If the feed alleys are smooth and level a floor truck can be used.

Beatty Feed Carrier—One End Sloped—Fig. 236—(Deal)

Box—This is made throughout of the best seasoned Canadian White Pine tongued and grooved, painted and varnished. It is solidly nailed and bolted together. It is reinforced by heavy steel bands. The top edges are all protected by a band of steel. The bottom is made of a one piece 20 gauge galvanized steel sheet.

Shaft, Lifting Chain, Roller Arms, Handwheel Frame, Sprocket Chain, Handwheel Lock and Brake—As in Beatty Manure Carrier, page 289.

Size and Capacity—Box is 5-ft. long, 24-in. wide, and 20-in. deep. Slopes at one end. Holds 12 bushels. Weight 200 lbs.

This carrier is also made with an all-steel box and is made throughout of 20 gauge galvanized steel. It can also be made with either wood or steel box not to raise and lower as shown on the next page.

Beatty Floor Feed Truck—Fig. 281

(No. 1, Durr; No. 2, Durs; No. 3, Durt)

Box—This is made of thoroughly seasoned, Canadian White Pine, tongued and grooved, painted and varnished and strongly bolted together. The ends and bottom are made of one 20 gauge, heavily coated, galvanized steel sheet. This perfectly smooth bottom is very easy to shovel from and very durable. All the edges of the box are protected by bands of steel and corners are stoutly reinforced with iron. Wooden cleats run at frequent intervals up and down the sides. The weight of the box is nicely balanced.

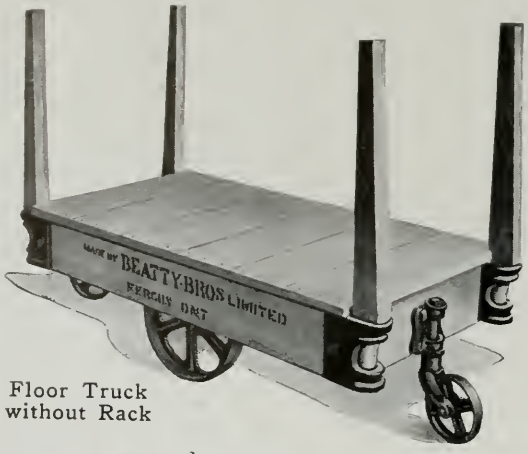
Frame—This is substantially built of 2-inch hard maple, solidly bolted together.

Main Wheels—Are of heavy design and run on 1-inch cold-drawn steel shaft. On No. 1 and No. 2 Carriers, main wheels are 14-inches in diameter with 2-inch face; On No. 3 Carrier, main wheels are 16-inches in diameter with $2\frac{1}{2}$-inch face.

Caster Wheel—On all sizes, 6-inch in diameter with $1\frac{1}{4}$-inch face. Caster is held in a swivel bracket which allows the truck to turn easily.

Size and Capacity—No. 1, 6-ft. 4-in. long; 2-ft. wide; 2-ft. deep; 15 bushels. No. 2, 6-ft 4-in. long; 2-ft. 8-in. wide; 2-ft. 4-in. deep; 20 bushels. No. 3, 7-ft. 2-in. long; 2-ft 8-in. wide; 2 ft. 4 in. deep; 25 bushels.

Weight—No. 1, 200 lbs. No. 2, 230 lbs. No. 3, 275 lbs.



Floor Truck
without Rack

Beatty Hay Rack Floor Truck—Fig. 332

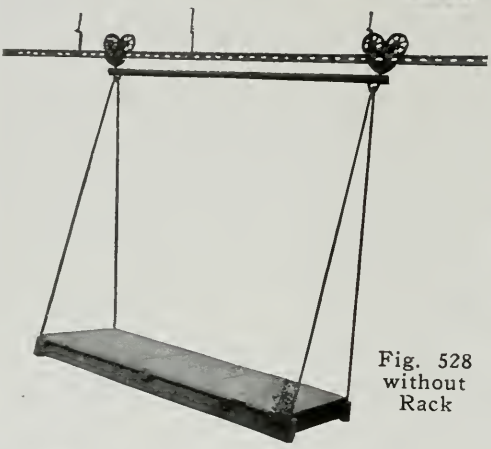


Fig. 528
without
Rack

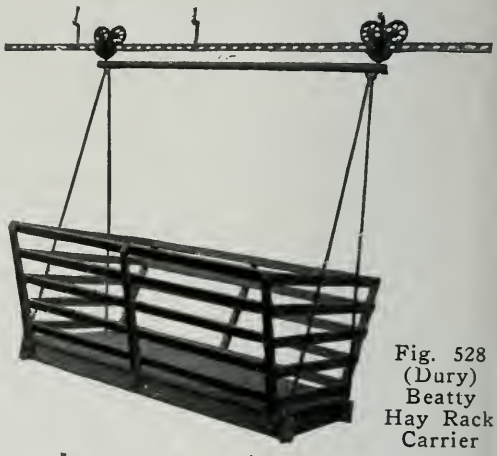


Fig. 528
(Dury)
Beatty
Hay Rack
Carrier

Fig. 582—(Durf)
3-Can Conveyor

Fig. 581—(Durg)
Roller Arm
Conveyor

Fig. 527
Feed Carrier. Both Ends Sloped

Beatty Floor Truck—Fig. 332

(No. 1, Dupo; No. 2, Dupont)

Platform Frame—Built of 2-in. x 6-in. maple timbers. Large cast iron sockets are placed at the corners, which not only hold the stakes, but make a solid joint for the timbers, which are mortised into the sockets. Frame is further strengthed by a heavy 6-in. maple brace running from end to end, by two ½-inch truss bolts running side to side and two ½-inch truss bolts running end to end. Truck floor is 1-inch hard maple well planed. Stakes are also hard maple.

Axle and Wheels—1-inch cold-drawn steel shaft held by heavy boxings. Axle boxings do not extend beyond the frame. Main wheels have 2-inch face, swivel caster is very strong wheel being 6-in. in diameter with 1¼-inch face.

Size—No. 1, 4-ft 2-in. long; 2-ft. 2-in. wide and 15-in. high. Diameter of wheels 14-in.; diameter of axle 1-in. Size No. 2, 5-ft. 8-in. long; 2-ft. 8-in. wide; 17-in high. Diameter of wheels 16-in.; diameter of axle 1¼-in.

Weight—No. 1, 220 lbs. No. 2, 240 lbs. **Finish**—The wood is well soaked in oil.

This truck can be equipped with hay racks for carrying hay, as illustrated on the opposite page. For specifications of hay rack, see below.

Beatty Platform Carrier

Fig. 528 for Hay Rack, Fig. 60 for Milk Cans.

Platform—Built of 2-in. x 4-in. hard maple timbers bolted and stayed together. Platform floor is 1-inch planed hard maple.

Beam—Beam or truck is made of 1⅞-inch tubing. ¾-inch steel eyes pass through this tube and are bolted solidly to the roller arms, from these hang the ⅝-inch steel arms which carry the platform.

Track Wheels and Roller Arms—Same as used in Beatty Manure Carrier, page 289.

Size—Platform is 2-ft. 6-in. x 5-ft. 6-in. Hay Rack dimensions as given below. Weight 200 lbs. Fig. 60 is made long in order to carry three 8 gallon milk cans.

Beatty Hay Racks

The Beatty Floor Truck, Fig. 332, and Platform Carrier, Fig. 528, can both be equipped with Hay Rack as shown on the opposite page.

Size of Rack—5-ft. 6-in. long; 2-ft. 6-in. wide at the bottom and 4-ft. 4-in. wide at top.

Beatty Feed Carrier—Both Ends Sloped—Fig. 527—(Dove)

Box—Construction is the same as Fig. 230, described on page 309, except that both ends are sloped.

Beam—Same as for Beatty Platform Carrier described above.

Track Wheels and Roller Arms—Same as used in Beatty Manure Carrier, page 289.

Sizes and Capacities—No. 1, 6-ft. 4-in. long; 24-in. wide; 20-in. deep; 12 bushels. No. 2, 6-ft. 8-in. long; 26-in. wide; 24-in. deep; 16 bushels. No. 3, 7-ft. 4-in. long; 28-in. wide; 24-in. deep; 20 bushels. No. 4, 7-ft. 8-in. long; 30-in. wide; 28-in. deep; 24 bushels.

Weights—No. 1, 150 lbs. No. 2, 175 lbs. No. 3, 200 lbs. No. 4, 250 lbs.

This carrier can be made with wood box one end sloped in which case specify Fig. 59 (Dovet). This carrier can also be made with 20 gauge steel box with either one end or both ends sloped. Capacity the same as listed above.

Beatty Three Can Conveyor—Fig. 582—(Durf)

or

Beatty Large Can Conveyor—Fig. 529—(Durn)

Both these conveyors are made to raise and lower.

Windlass—In every respect the same as windlass for Beatty Manure Carrier. By means of rollers or pulleys, a heavy steel beam is suspended to which [illegible]-inch hooks are attached to engage with the handles of the milk cans.

Weight—125 lbs.

The single can conveyor, Fig. 529, is the same except that it has one pair of [illegible]-inch hooks instead of three pairs and is made to carry one 30 gallon can.

Beatty Roller Arm Conveyor—Fig. 581—(Durg)

Roller Arm—Roller arm and track wheels are the same as used for Beatty Manure Carrier

Hook—¾-inch forged hook is suspended from the roller arm carrying two [illegible]-inch grappling hooks, which engage with the handles of the milk can. Weight 100 lbs.

...er in Barn of Wm. Wilson, R. R. No. 1, Agincourt, Ont.

A boy and a BT Hay Carrier Outfit are equal to three men

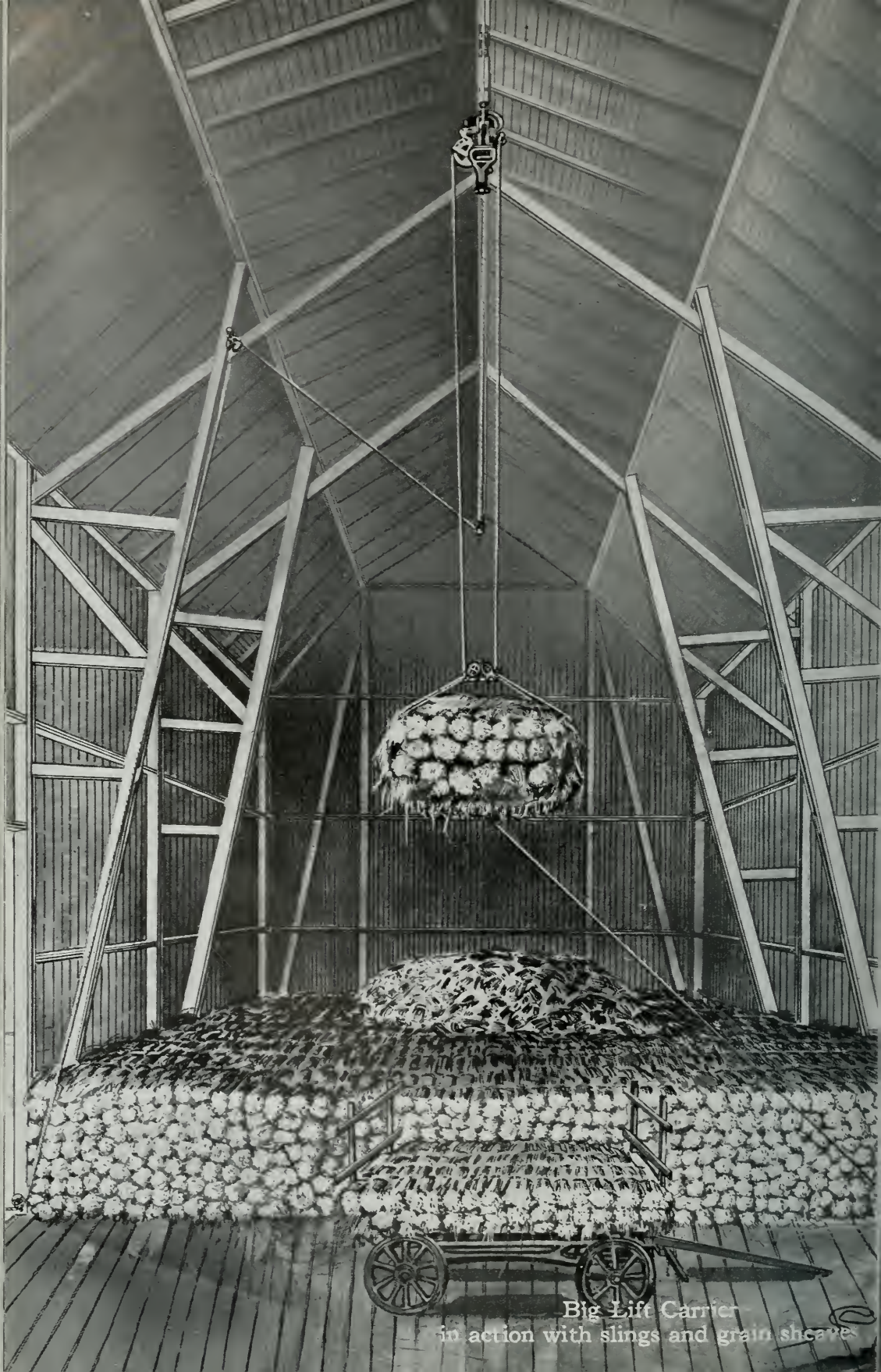
The horses do all the heavy work

Ten times faster than the old way

The Old Slow tedious way.

A boy can do the work of a man with our Improved Heavy Hay Carrier. This also demonstrates correct way to run rope so as not to twist the rope.

Big Lift Carrier and Slings in the same barn
Note that slings take a bigger bundle



Big Lift Carrier
in action with slings and grain sheaves

Every Farmer Needs a Hay and Grain Carrier

A good hay and grain carrier is a necessity on any farm. A hay carrier soon saves labour enough to pay for itself, for it is equal to two good men and in high barns it is equal to three. The horses do the work and a man and boy can unload into the highest barn. By saving labour, it saves the high wages, board and lodging of hired men, and extra help in the kitchen at harvest time. Machinery is cheaper than high priced labour. A hay and grain carrier saves the hardest part of harvest work because the horses do the heavy lifting. The carrier and horses put the largest load right up to the peak of the barn and cut out the hard work of pitching.

A hay and grain carrier is a time saver. It cuts in two the time required to get in the crop. It enables you to store away the largest load in a few minutes. Its need is realized during the uncertain weather of hay time or harvest. The time saved by the hay carrier is often the salvation of the crop. In two or three minutes a boy can attach the binding pulleys to the slings or set the fork in the load, jump down and drive out the horses, and the load is quickly elevated, run into the mow and dumped.

The carrier outfit will put more hay and grain in the mow. In dropping the bundle it packs the hay in the mow. A fork outfit is satisfactory for hay but a good sling outfit is far better, because it will take the load off clean in three lifts. It will also handle sheaves of grain, bundles of peas or corn. Slings are particularly good when the hay or grain is short. They lift everything clean from the rack.

The Beatty Outfits

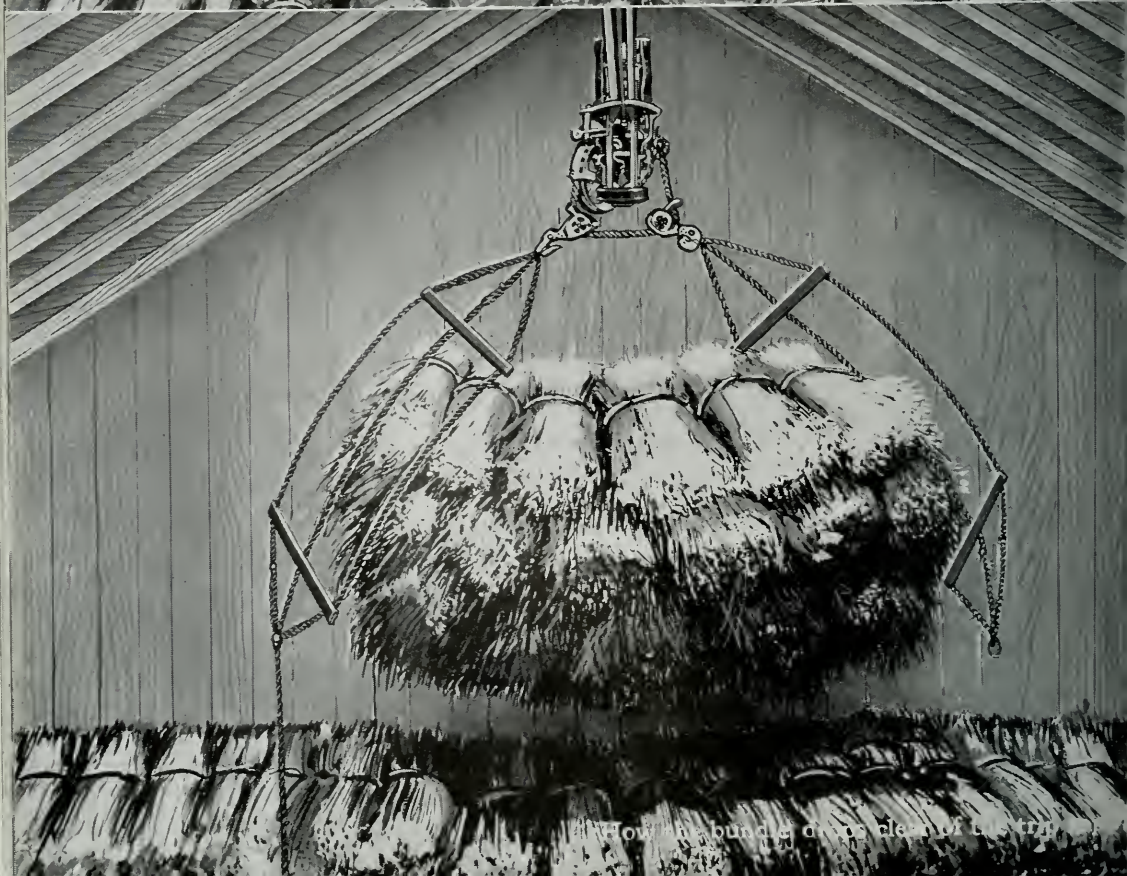
A good carrier will last for years. Some of the first Beatty hay carrier outfits, installed over 35 years ago, are still in use and giving good service.

It is over 35 years since we started to make hay carriers. In that time we have purchased the businesses of seven firms making hay carriers. The lines made by these companies were well known, as for instance, Wortman & Ward of London, Ont. and Emerson & Campbell of Tweed. Good ideas were obtained from all, and these with the original Beatty line, give us a substantial basis for stating that our line of hay carriers has more strong features and will give more lasting satisfaction than others. That these features are appreciated by Canadian farmers is shown by the fact that for a considerable time we have built over 75% of the hay carrier goods sold in this country.

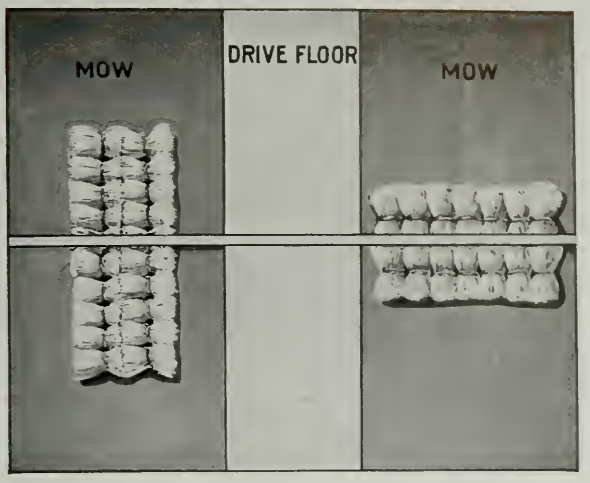
Our ideal has always been to make the carriers, forks, slings, and all the other parts of the outfit heavy and strong. A hay or grain carrier outfit has hard and heavy work to do and must be strong. The Beatty outfit weighs 50% more than others and will stand the strain for a life time. Weights of the different parts of the Beatty outfits are given in the following pages and show you the great amount of extra value you get by purchasing the Beatty.

The Beatty outfit is easy to install at any time. The most convenient time is when the barn is full, or if the barn is being built, just before the sheeting of the roof is put on.

How the bundle is dragged in when the mow is full



How the bundle drops clear of the trip



Right Way Wrong Way

The Big Lift Car drops the bundle into the mow the right way

The Big Lift Hay Carrier—Fig. 464

(Laura)

The Big Lift Carrier is built for heavy sling work but it can be used with either one or two forks. In sling work it excels. Loose binding pulleys are used. These pulleys hang at right angles to the track. The Big Lift Carrier takes the bundles into the mow just as it lies on the load, so that the bundle is thrown into the mow at right angles to the track and lies lengthwise in the mow. See illustration above. The advantages of a Big Lift Carrier are as follows:

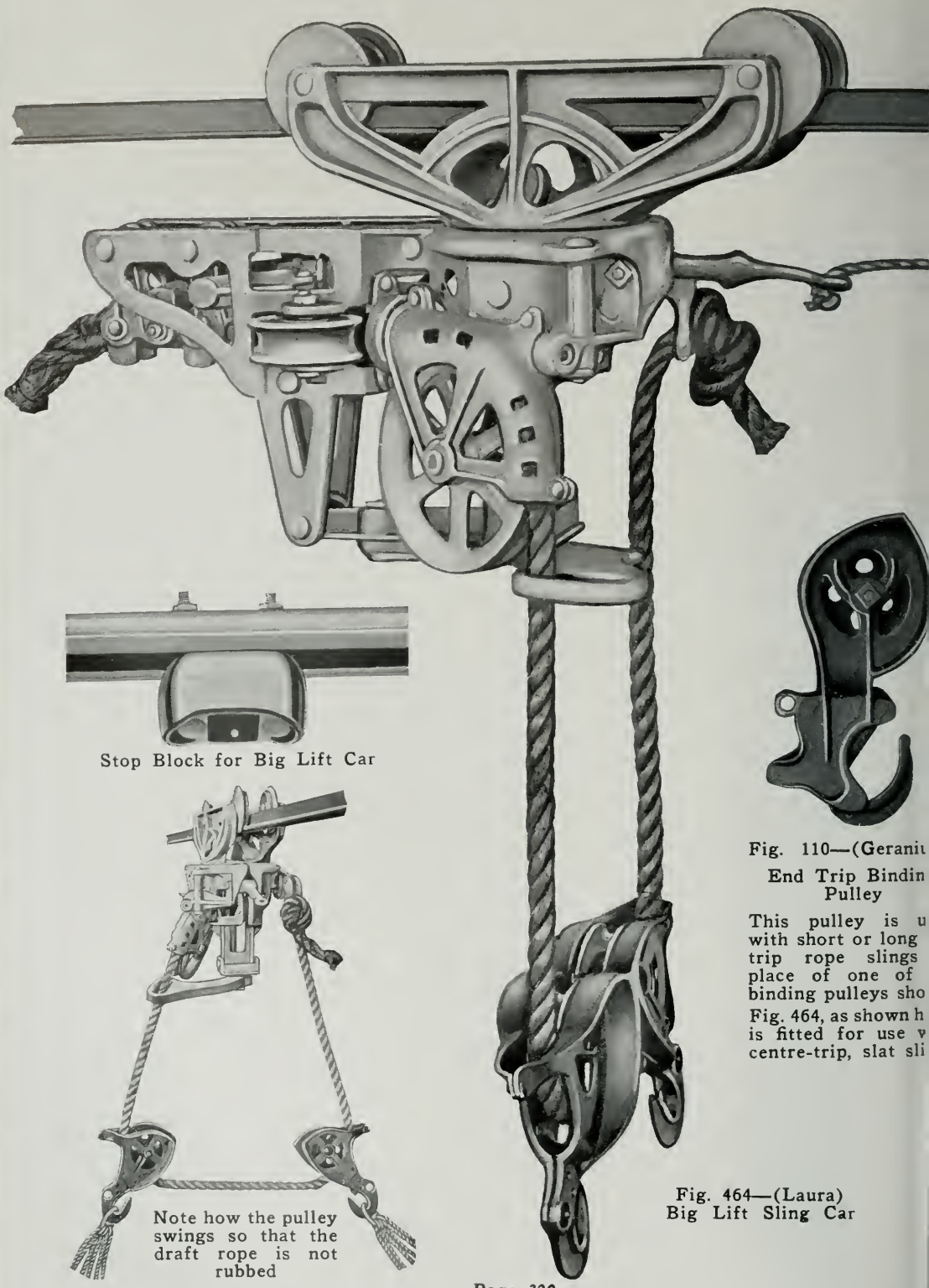
1. The bundle is deposited lengthwise in the mow thus saving mowing.

2. The bundles when tripped cannot possibly fall on the trip rope. When the bundle is carried in the old way, parallel to the track, the trip rope must pass under the bundle. If the trip rope happens to be attached to that half of the sling farthest away from the operator the bundle falls upon it.

3. The Big Lift Carrier saves a great deal of worry when placing the slings on the rack. With many other cars it is always necessary that the half of the sling to which the trip rope is attached will be nearest to the drive floor when the bundle is hoisted in the barn. This is quite abolished by the Big Lift Sling Carrier. It does not matter how you place the slings.

4. When filling the top of the mow the last bundle frequently has to be dragged in. When the Big Lift Carrier is used the bundle is dragged in on its end so that the slings can easily be pulled out. Other carriers drag the bundle in on the slings; when the bundle is tripped it falls on them and they have to be dug out or the slats broken.

5. The Big Lift Carrier does not injure the draft rope—a most important feature.



Stop Block for Big Lift Car

Fig. 110—(Geranit

End Trip Bindin Pulley

This pulley is u with short or long trip rope slings place of one of binding pulleys sho Fig. 464, as shown h is fitted for use v centre-trip, slat sli

Note how the pulley swings so that the draft rope is not rubbed

Fig. 464—(Laura) Big Lift Sling Car

The Big Lift Carrier differs from other cars in the construction of the rope grip. It is perfectly smooth; there are no teeth or ribs to injure the rope. Furthermore, it never drops squarely on the rope; in gripping, it travels with the rope and sets gradually. This does not mean that the rope slips through the grip. The grip travels with the rope and grips where it first takes hold, without chafing or wearing the rope.

A draft rope will last twice as long in a Big Lift Carrier, which has no teeth in the grip as it will in any carrier having teeth, ribs or ridges to chafe the rope. Consider the high price of rope, and examine the rope grip on any carrier before buying. In hay carriers having teeth in the grip, it is often necessary to cut six feet off the end of the rope each season.

6. A bundle can be raised more easily in the Big Lift Carrier than in any other. The draft pulley swivels and aligns itself with the draft rope. No matter how the rope may be spread when the bundle is being shirred, the draft pulley will swing out and align perfectly with the rope. On account of this valuable feature, the rope does not suffer from rubbing or climbing the sharp flange of the wheel. The draft pulley is large and the rope ways are large, so that the rope passes through the car with little friction. The less friction there is, naturally, the faster and more easily the bundle can be raised.
7. The Big Lift Carrier runs on the strongest hay carrier track on earth,—The Beatty Single Rail Steel Track. This is described in detail on pages 326-7.
8. The Big Lift Carrier returns to the stop block itself. A bag filled with sand is attached to the return rope, which brings back the car after the bundle is dumped.
9. The Big Lift Carrier will carry the bundle into the mow at any elevation. The car can be tripped off the stop block as soon as the bundle is elevated high enough to clear the hay or grain already in the mow. This saves a great deal of time, as it saves elevating the bundle to the track. It leaves the bundle hanging down from the track, so it can be swung over one side of the mow and tripped there.
10. The Big Lift Car will trip off the stop block, no matter how much the bundle swings, because no plunger head has to enter the car.
11. The Big Lift has large track wheels, these being 4 inches in diameter and running on ¾-inch steel pins. Therefore it runs easily on the track.
12. The Big Lift has a long spread on the track, thus distributing the strain over a greater area of track and rafter.
13. Owing to large rope ways and the construction of the grip, the Big Lift will work equally well with ¾-inch, ⅞-inch or 1-inch rope. The rope grip is adjustable.
14. The Big Lift is a swivel carrier and can be reversed quickly to run into either mow.
15. The Big Lift, true to its name, is constructed in every part so that it will endure the heavy strains put upon it in harvest time. In two or three lifts, it will handle the biggest load a team can draw to the barn. It weighs 70 pounds.

The distance between the bottom of the track and the bottom of the bundle is approximately 12 feet, when the bundle is raised as high as it will go.

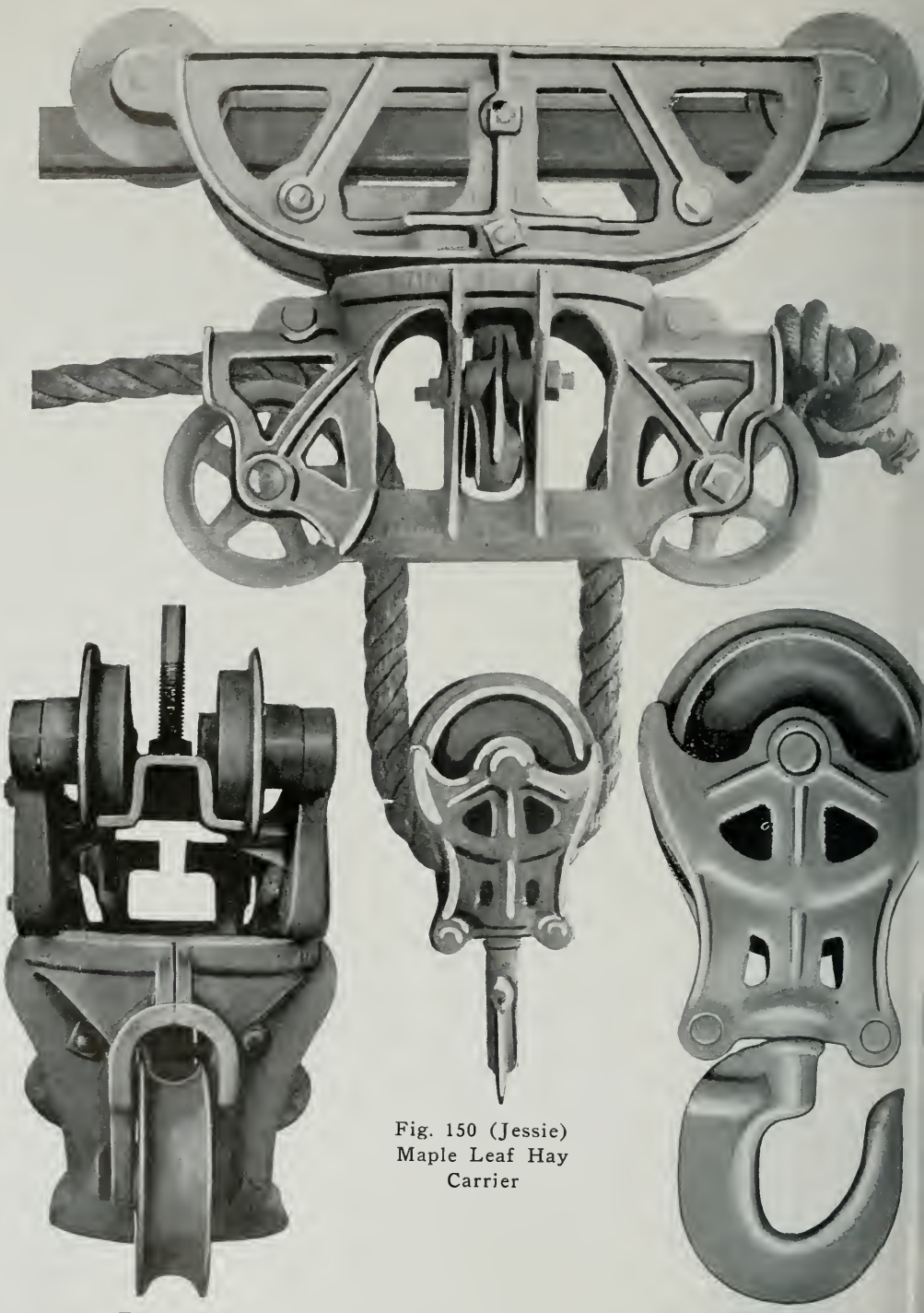


Fig. 150 (Jessie)
Maple Leaf Hay
Carrier

End View

Bale Pulley

Raise and Lower
Stop Block for Maple Leaf Car

Solid Stop Block is supplied unless the other is called for

The Maple Leaf Hay Carrier—Fig. 150

(Jessie) (Patented)

The Maple Leaf Carrier is especially constructed for work with a fork or short slings. It is a heavy well-built car and will stand the strain of the harvest work for a lifetime. It has a stoutly braced, malleable frame. It weighs 34 pounds with its bail pulley and is finished in grey enamel.

The Maple Leaf has a large, open flaring mouth which receives the bail pulley, no matter how the bundle may be swinging as it is being elevated. One or two twists in the rope will not prevent this pulley from registering in the carrier. The swivel in the bail pulley allows the twists to come out of the rope.

This carrier has two rope wheels, each 3½ inches in diameter, revolving on heavy axles. Some carriers have only one rope wheel and it is an inch smaller than the wheels on the Maple Leaf. Obviously, a car with only one rope wheel can only last half as long as a car with two, for the rope wheel has more hard work to do than any other parts of the carrier. It is the part that wears out first. When one rope wheel wears out on the Maple Leaf, reverse the rope and use the other rope wheel.

The grappling dogs that catch and hold the bail pulley in the Maple Leaf car are joined together and must operate together, so that there is no danger of one dog operating without the other. Therefore the bail pulley always registers properly and lets go properly. The lock of the Maple Leaf is in the main frame to which the track wheels are attached. The lock is always in line for registering in the stop block, no matter at what angle the bottom swivel part of the carrier may be in respect to the track.

The frame and hook on the bail pulley swing freely on the axle of the bail pulley, while the pulley itself remains stationary after registering in the car. The grappling hooks engage with the rim of the pulley, and, because the pulley on which the dogs engage does not move with the swinging of the bundle, the points of the dogs are not worn. This adds years to the life of the car. This same feature enables a bundle to be drawn in over a high beam without tipping the car or injuring the bail pulley.

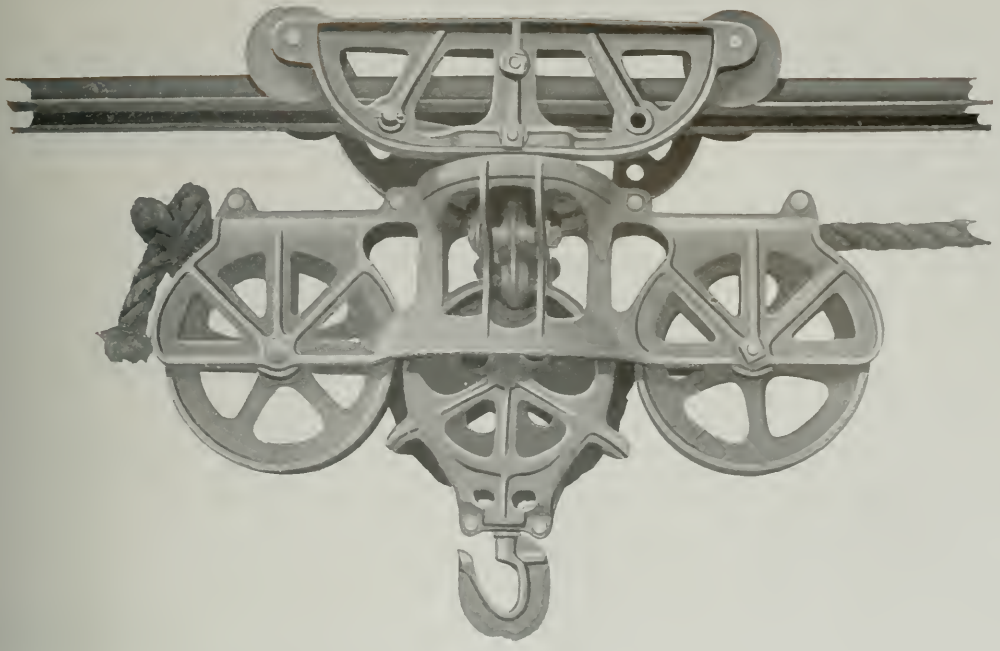
There is a hole through the bail pulley hook, so that a cotter pin may be used to secure fork or sling chain. The sides of the bail pulley fit closely to the sheave, and expose no corners or edges to injure the rope.

Large (2½-inch) track wheels make the Maple Leaf run easily and smoothly and cause it to draw back easily. Note the wide bearings of the track wheels on the track,—almost twice as great as in other carriers. The Maple Leaf has a 14-inch wheelbase, so the strain is widely distributed on the track. The carrier is compactly designed so that it carries its load higher than any other style.

The Maple Leaf is reversible. When it is necessary to change from working in one end of the barn to working in the other, it can be reversed anywhere on the track and then pulled right through the stop block. It is not necessary to swivel the car on the stop block. Where desired, a raise and lower stop block is furnished with this car, which can be operated from the floor to allow the carrier to pass, from one stop block and through the other, with a load.

The two types of stop block for the Maple Leaf Carrier are shown at the top of this page. The raise-and-lower style is sent when ordered, and is used where there are two drive floors and it is desired to take the carrier past one of them without tripping. The gate is then raised as shown in the left hand illustration above.

Asylum Farm Barn



Pacific Hay Carrier—Fig. 461

(Acclaim) **(Patented)**

Many farmers are using cable to take the place of draft rope. With cable, a large draft wheel is necessary.

Our Pacific Carrier is built to accommodate either rope or cable. Draft wheels are 7 inches in diameter and the bail pulley has a 7-inch sheave. Note how well the rope is protected by the frame of the car.

In sections of the Dominion where the climate is damp and tends to rot fibre rope, the use of steel cable is becoming very popular. The Pacific Coast is a locality in point. Where the Pacific Car is ordered to use with Manila rope, the draft wheels are sent to suit rope. When ordered for use with cable the draft wheels are properly machined to accommodate a 3/8-in. cable.

Apart from the larger draft wheels, with the larger frame to accommodate them, the Pacific Carrier has the same specification and design as our Maple Leaf Carrier already described on page 323.

The upper part of the car is the same as our Maple Leaf. It has the same track wheels and the frame is similar. Wheelbase, flaring mouth, swinging bail pulley, raise-and-lower stop block, reversible and swivel features are identical with those on the Maple Leaf Car. The lock is the same and the car runs on the same track. We can supply 3/8-inch galvanized wire cable for use with this car.

Pacific Carrier, Fig. 461, is shipped complete with bail pulley and stop block. Weight, 50 pounds. Finished in grey.

Fig. 67—BT Single Rail Steel Track End Stop (Cake)

Fig. 69
BT Single Rail Steel Track Couplings (Cook)

Showing How Track Couplings are Used

Fig. 65
Single Rail Steel Track Hanger (Cushion)

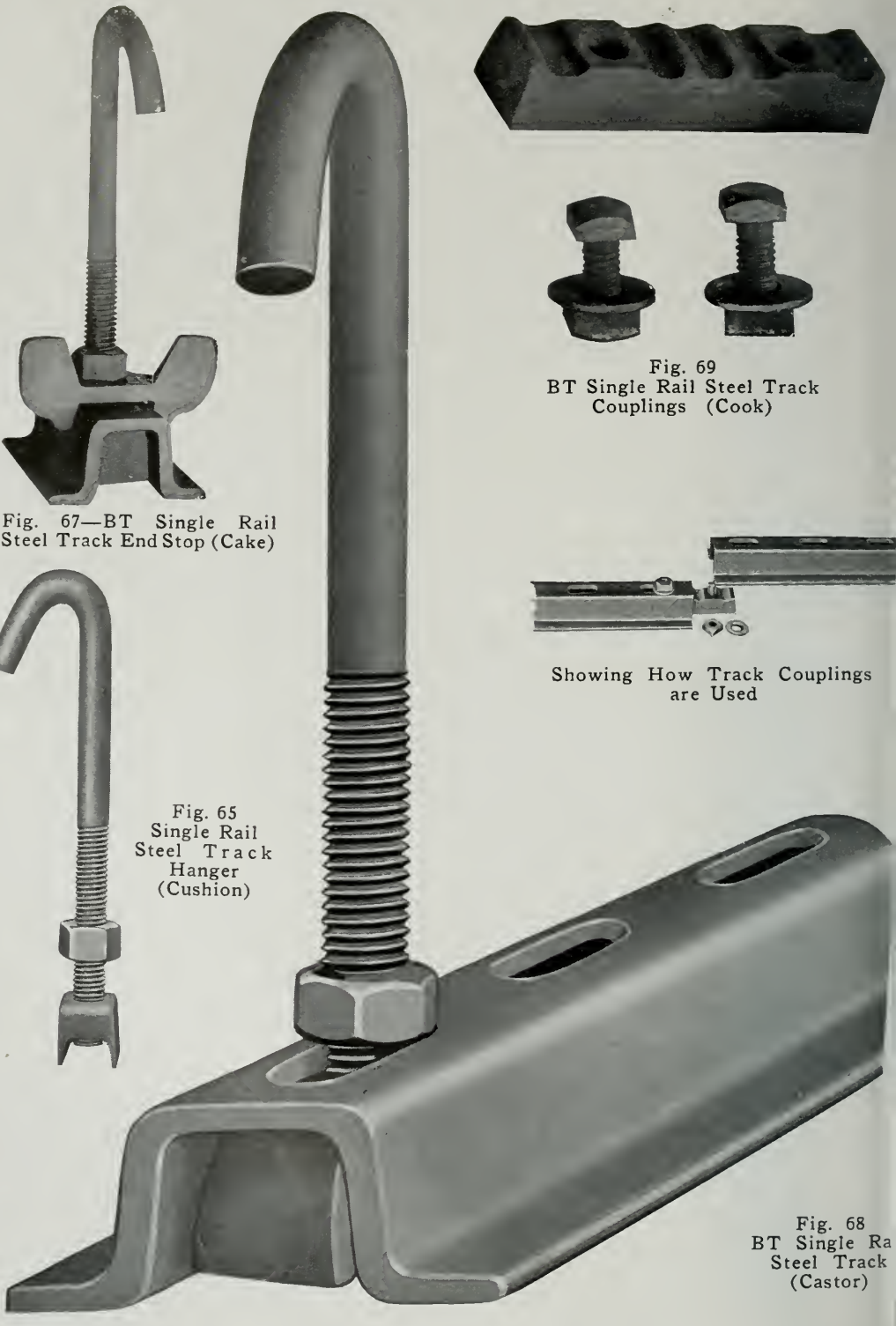
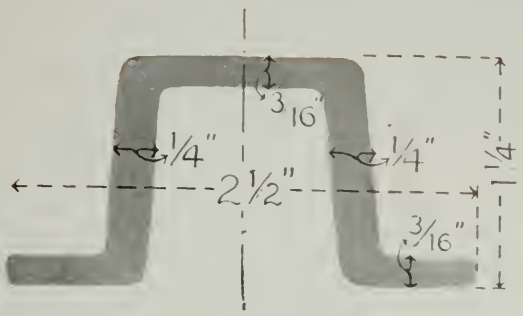


Fig. 68
BT Single Ra
Steel Track
(Castor)



Cross Section Beatty Single Rail Steel Track

Beatty Single Rail Steel Track—Fig. 68

(Castor) (Patented)

No part of a Hay Carrier outfit is more important than the track. Light tracks will not stand up under the strain when rafters are three feet apart and often give trouble when the rafters are two feet apart.

Beatty Single Rail Steel Track is stronger and heavier per foot than any other steel hay carrier track built. We guarantee it to carry a ton with three-foot spans. It will carry twice the load of any other track without bending. It weighs two-and-two-third pounds per foot, which is over half-a-pound more than other tracks. It is made of the very best high carbon steel.

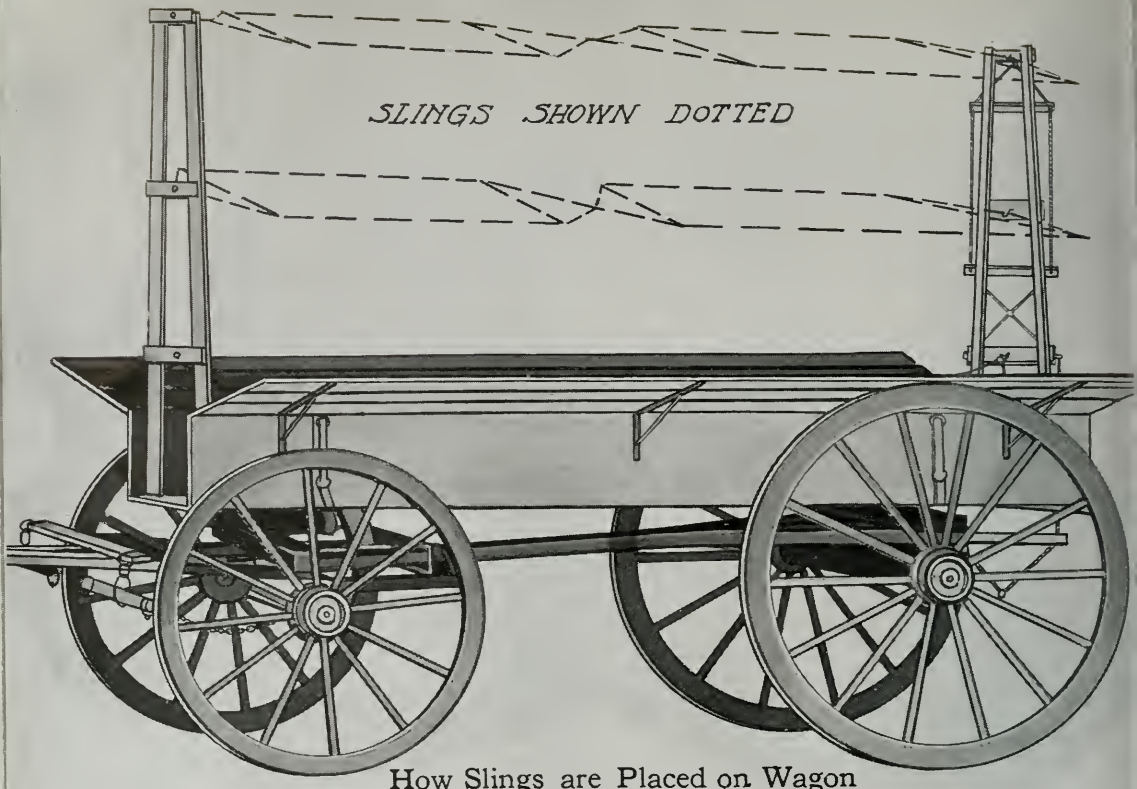
The illustration above shows the shape and dimensions of the channel. This track has a width of 2½ inches and a depth of 1¼ inches. It is $\frac{3}{16}$-inch thick. Note the wide flanges on which the track wheels run, which allows a wider wheel tread than that on other tracks.

Sections of the track are held together by heavy, malleable joint clips, which are bolted through the track, the bolts passing through the end holes of each bar of track. Sagging or separation is impossible. When the joints are bolted tight and riveted, the tracks forms one continuous bar from end to end. All other styles of track are simply clamped together and depend upon friction to hold the track at the joint.

The top of the track is punched, so that the hangers can be attached where desired. The lower hanger nut, when tightened, fits into the deep groove of the track, so that it cannot turn off. Beatty Hangers are correctly shaped. The bend is not perfectly round; it is quite sharp and keeps the weight aligned with the shank so that the hanger will stand greater strain.

The stop blocks, on which the car registers, are bolted through, as shown on page 320, so that they cannot slip along the track. This is most important with the Big Lift Car. A heavy car, forced against the stop block by the weight of a sandbag, will soon force a stop block along the track, unless it is bolted through.

We own the rolls for making this track, and it cannot be supplied by any other firm.



How Slings are Placed on Wagon

Taking off Bundle With Slings and Self Binding Pulleys

Fig. 735—Master Rafter Bracket for 6-inch Rafter (Cussit)

Fig. 50 — BT Standard Rafter Bracket (Crack)

Fig. 692 — (Almost) Stake Clip—4 to the set

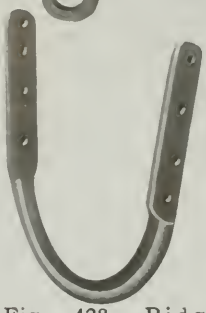


Fig. 428 — Ridge Pole Rafter Bracket for 4-inch Ridge Pole (Cabin)

Fig. 227—BT Ridge Pole Rafter Bracket (Candle)

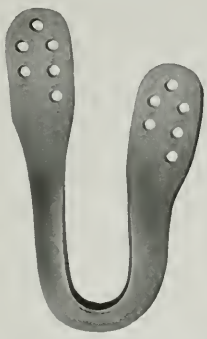


Fig. 226—BT Side Rafter Bracket (Cattle)

Fig. 51—BT V-shaped Rafter Bracket (Cricket)

Beatty Rafter Brackets and Stake Clip

Fig. 735, Master Rafter Bracket, is made for sawn rafters, and the nail holes are so designed that the rafter will not split. Note that no two nail holes are in line. Made of malleable iron.

Fig. 50, Standard Rafter Bracket, is made of soft malleable iron and can be bent to suit the shape of the rafter. It is provided with three holes for the hanger, so that height of track may be adjusted. Adjustable feature also makes it possible to drop the track toward the stop block. Hanger hooks cannot raise or lower as the car, with its heavy load, passes.

Fig. 226, Side Rafter Bracket, is designed to be attached to sloping rafters as, for instance, in wide barns where there is a track on each side of the barn. Made of malleable iron.

Fig. 227, Ridge Pole Rafter Bracket for 2-in. Ridge Pole, will hang the track parallel with joist or ridge pole and directly beneath it.

Fig. 428 is designed for the same purpose, but is made to fit a 4-inch ridge pole instead of 2-inch. Figs. 227 and 428 are both made of malleable.

Fig. 51, V-shaped rafter bracket, is the ordinary cheap rafter bracket first used in hanging hay tracks. Made of malleable.

Fig. 692, Stake Clips, are used to attach the stakes of a hay rack to a wagon. They are furnished in sets of four. Two sets are needed if long centre trip slat slings are used, one set for the front of the wagon and one set for the back. Three sets should be purchased for use with short rope slings, six being used on each side. None are used at the end for short slings.

Fig. 121—Centre Trip Sling Lock

BT 4 Foot Centre Trip Slings, Fig. 29

BT 6 Foot Centre Trip Slings, Fig.

Beatty Centre Trip Slings

(Fig. 29—Violet. Fig. 94—Tulip. Fig. 172—Poppy)

Short rope slings, as listed at the bottom of this page, can be used with a sling carrier as shown above. One of the regular binding pulleys is replaced with the Beatty End Trip Binding Pulley, shown on page 320. This eliminates the need for a sling chain and the shirring of the bundle is done by the horses.

The rope in Beatty Centre Trip Slings never kinks, because a special long fibre, soft-laid manilla rope is used in them. The slats are made of B.C. Fir, 1⅜ x 1¾ inch, well oiled, and the ropes are attached by adjustable hooks. The slings are adjustable. They can be lengthened or shortened to suit the rack.

The inset on the opposite page, Fig. 121, shows the trip for these slings. It is made entirely of malleable iron. It cannot be broken, nor can it be opened accidentally if you step on it. It will trip, no matter which way the sling goes into the mow, when used with a Big Lift Car. The locking of the trip is an easy matter. Any boy can do it.

The four-foot slings, Fig. 29, have two ropes and four spreaders. Rope is ½-inch. A set of three, enough for one wagon, weighs 60 lbs.

The five-foot slings, Fig. 94, have three ropes and four spreaders. Rope is ½-inch. A set of three slings, enough for one wagon, weighs 70 lbs.

The six-foot slings, Fig. 172, have three ropes and four extra heavy spreaders. A set of three, enough for one wagon, weighs 85 lbs. Rope is ½-inch.

Rope Slings

Some men prefer to use rope slings. To meet these requirements, we make rope slings as listed below. An illustration showing how they can be used with a sling car is given at the top of this page.

Fig. 27—Two Rope Short Slings, in sets of four, made of ½-inch rope.

Fig. 28—Three Rope Short Slings, in sets of four, made of ½-inch rope.

Fig. 478—Two Rope Short Expansion Slings, in sets of four, made of ½-inch rope.

Fig. 484—Three Rope Short Extension Slings, in sets of four, made of ½ inch rope.

Fig. 109—Three Rope Long End Trip Slings, in sets of three, made of ½-inch rope. We recommend Fig. 109 for use with Sling Cars and the End Trip Binding Pulleys.

Fig. 25—(Wood)
Beatty Square Top Fork

Fig. 200—(Peony) Fork
Attachment for Sling Car

Beatty Triple Grapple Fork
Fig. 171 (Steel)

Beatty Square Top Fork—Fig.25

(Wood) (Patented)

The Beatty Square Top Lock Lever Fork is the most popular fork in Canada. There are over 125,000 of them in use. Many of these have been working for thirty years or more and are still giving as good service as they did when new.

The points are long and sharp, and open with a shoulder against the frame. They do not depend on the side rods to hold them when open. When the fork is locked, open or closed, it is a positive lock, requiring no spring.

When the fork is open, the points are kept tight and in alignment with the frame, no matter how much pressure is put on them when they are being forced into the hay. On account of the fork locking when it is open, the operator can stand on it and push it into the hay.

The whole fork is very rigid and strong. It has a great capacity, the distance from the rocker bar to the points being 32 inches. This measurement is 3½ inches longer than that in many other forks. The rocker bar is close to the top, bringing the load very close to the top of the barn. The long lever used in closing the fork folds down when the fork is locked and is out of the way. The Beatty Square Top Fork will trip in any position. It is made entirely of steel and malleable iron. Sides and top are made of 1¼-inch x ⅜-inch high carbon steel. Side rods are ½-inch steel. Weight, 24 lbs. Finished in green.

Beatty Triple Grapple Fork—Fig. 171

(Steel)

The Beatty Triple Grapple Fork is made of high carbon steel. It trips easily from any direction. It closes and locks itself before returning to the load.

It is double braced throughout, making it very rigid and strong, and is so constructed that it balances in any position.

The width of the head is 19 inches. The tines, or points, are 22 inches. The fork when open has a spread of 55 inches. Weight, 48 lbs.

Fork Attachment for Sling Car—Fig. 200

(Peony)

The Beatty Fork Attachment, Fig. 200, shown on the opposite page consists of a hook to hold the fork and two links. One link is attached to each of the binding pulleys on a sling car. A fork can be used with a sling car by removing one of the binding pulleys. The Fork Attachment does away with the necessity of taking the rope out of the car to remove one binding pulley, and then doing the same thing over again when it is desired to put the second binding pulley back again for use with slings.

Fig. 37—Beatty Wood Sheave, Knot-Passing Pulley, Malleable Frame, 6-in. Sheave—(Abstain)

Fig. 38—Beatty Iron Sheave, Knot-Passing Pulley, Malleable Frame, 6-in. Sheave—(Account)

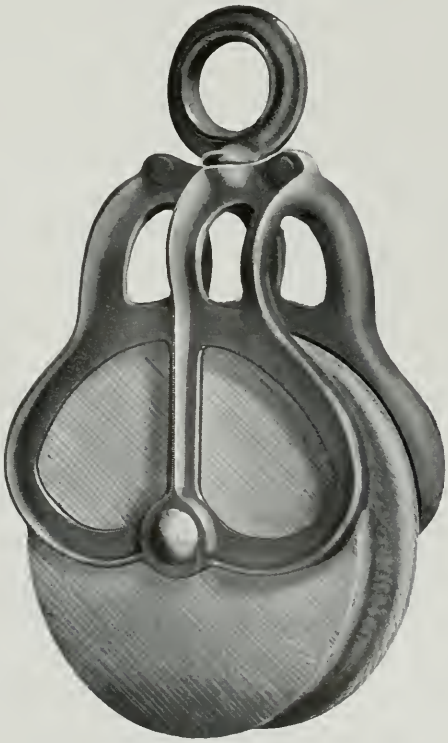


Fig. 384—Beatty Wood Sheave, Knot-Passing Pulley with 8-in. Sheave (Assault)

Fig. 360—Beatty Iron Sheave, Knot-Passing Pulley with 8-in. Sheave (Assay)

Construction of Beatty Pulley

Fig. 120—(Adduce) Beatty End Lift Pulley Bracket

Beatty Pulleys

The Pulleys are a most important part of a hay carrier outfit, because on them falls the great strain of raising the load. With stronger cars and stronger tracks now on the market, it is necessary to use strong pulleys.

Beatty Pulleys are extra strong. The frames are made of malleable iron, strongly ribbed and will not break no matter what strain is placed upon them by a hay carrier outfit. Pulleys with cast metal frames are not satisfactory and are dangerous for hay carrier work. In case of accident they break easily.

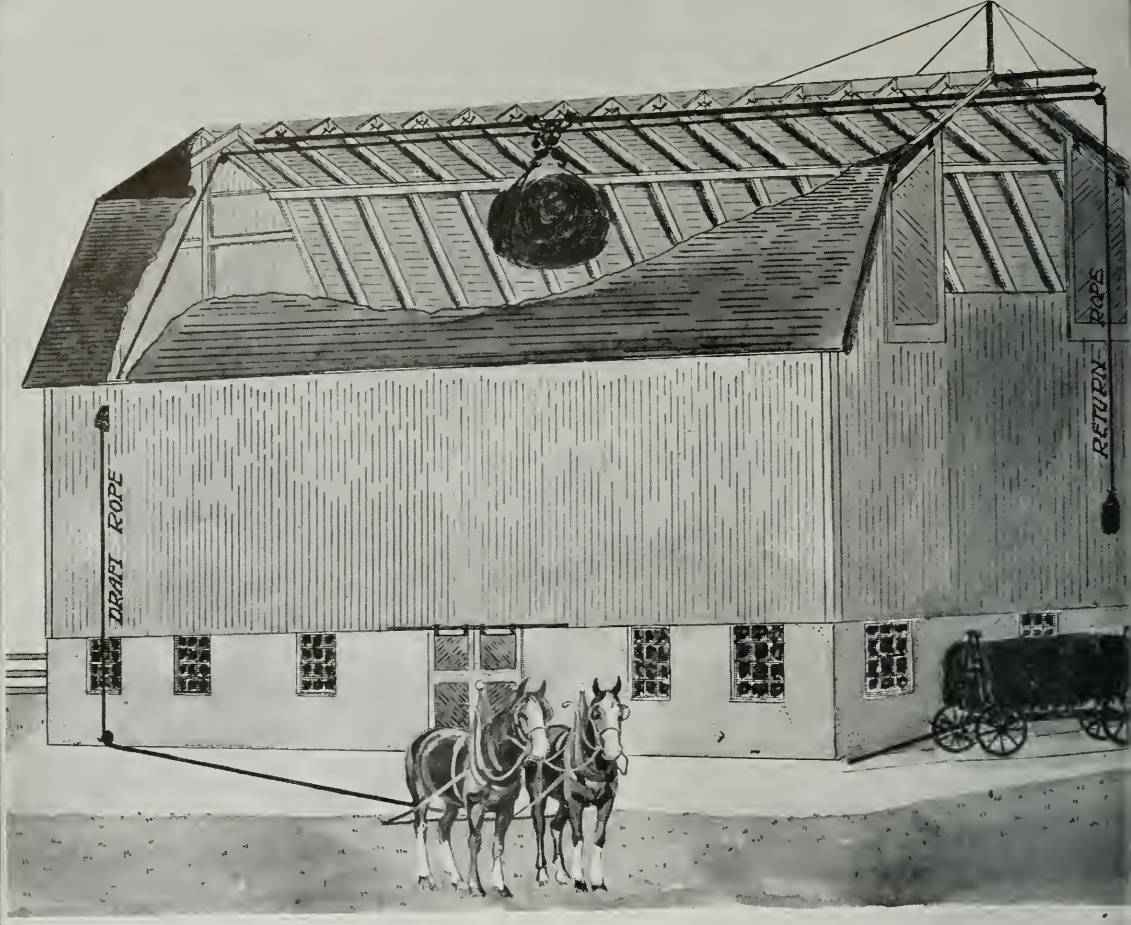
Rope is expensive. It is the first part of a hay carrier outfit to wear out. The life of a rope depends largely on well made pulleys. Poorly made common pulleys have often destroyed a rope in one season. Beatty pulleys save the rope and make the draft easier. Use pulleys not less than 6-in. in diameter. Beatty pulleys are carefully made to protect the rope. The frame slightly overlaps the rope wheel down past the centre axis, so that the rope cannot possibly get off the wheel or between the wheel and the frame. The eyes of the pulley are strongly made of malleable, heavily ribbed and swivel in the frame.

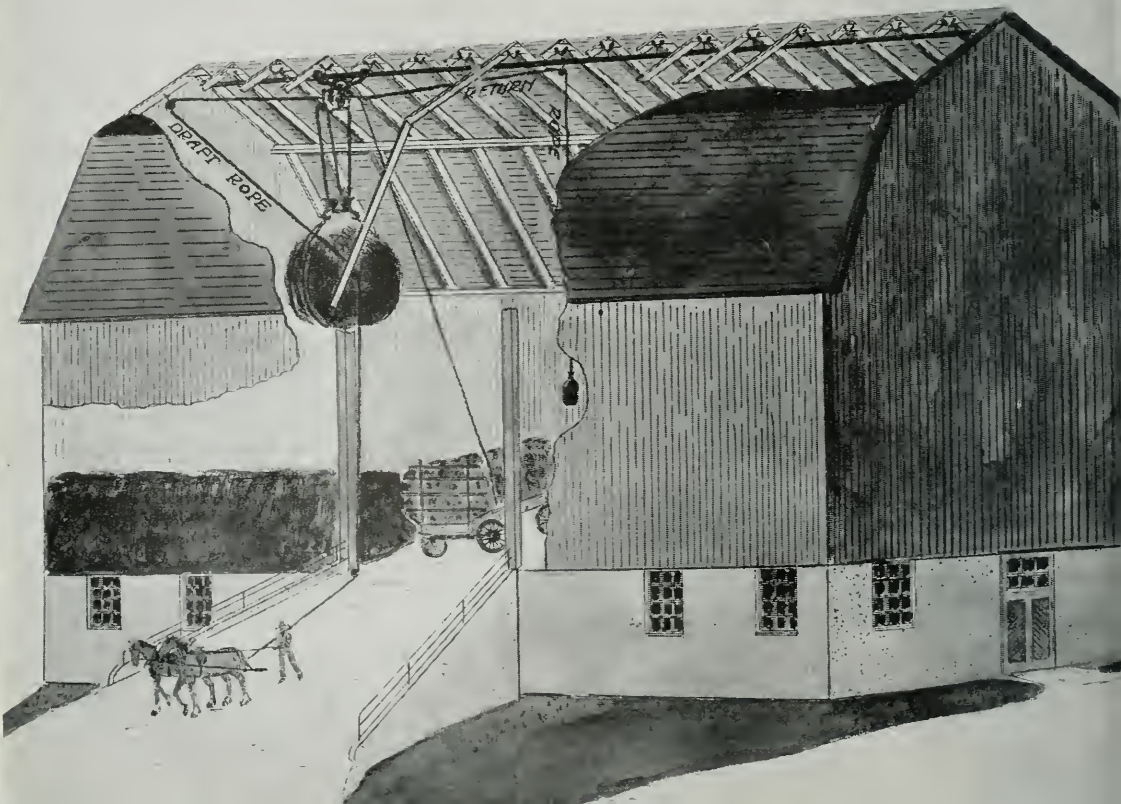
The rope wheel runs on a heavy 7/8-in. axle which is let in to recesses in the sides of the frame and held there with a heavy bolt. This throws the greater part of the strain on the frame instead of on the bolt and at the same time eliminates wear on the bolt. Rope wheels of Beatty Wood Pulleys are made of thoroughly seasoned hard maple smoothly turned and soaked in boiled oil.

SPECIFICATIONS

Fig. 37—Beatty Knot-Passing Wood Sheave Pulley has 6-in. rope wheel and weighs 3 lbs. Fig. 38 Beatty Knot-Passing Iron Sheave Pulley has 6-in. rope wheel and weighs 4 lbs. The Beatty 8-in. Pulleys, Fig. 384 and 360, are the same in construction as those described above, but have 8-in. rope wheels instead of 6-in. Fig. 384 8-in Wood Sheave Knot-Passing Pulley weighs 4 lbs. and Fig 360 8-in. Iron Sheave Knot Passing Pulley weighs 4¼ lbs.

The Beatty End Lift Pulley Bracket, Fig. 120, holds the pulley when it is necessary to run the rope from the inside of the barn down the outside, as shown at top of next page. It holds the pulley out so that the rope is clear of the building and prevents it rubbing on the building which would destroy the rope. This pulley and bracket are much better than the old style gable pulley. With the old stationary gable pulley, the pulley below had to be placed directly underneath, whereas with the Beatty End Lift Pulley and Bracket, the pulley is allowed to swing and align itself with the pulley below. An illustration showing lining of the rope for an end lift barn is given on next page. Fig. 120 is finished in green and weighs 3 lbs.


DRAFT ROPE
RETURN ROPE


DRAFT ROPE
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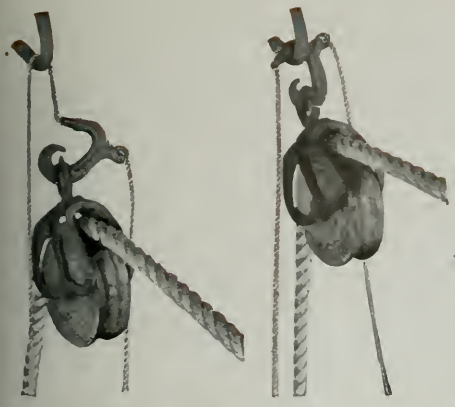


Fig. 46 BT Pulley Hoister

Fig. 49
¾-in. floor hook

Fig. 62
⅞-in. floor hook

Fig. 588
Threaded Floor hook

Fig. 425
Gable Extension Hanger

Fig. 118 Rope Hitch

Showing Rope Hitch with rope

Beatty Malleable Pulley Hoister—Fig. 46

(Adieu)

The Beatty Pulley Hoister saves all climbing in changing the hay carrier from working in one end of the barn to working in the other and in bringing the pulley down for oiling. A small rope is looped through the hoister and placed over the pulley hook. The pulley is hooked on the hoister and by pulling on the small rope the hoister is hooked over the pulley hook. By drawing on the rope on the other side of the hoister the pulley can be brought down again. One hoister is required for each end of the barn and can be used on any other pulley that is difficult to reach. Quarter inch rope should be used.

Beatty Swivel Rope Hitch—Fig. 118

(Alas)

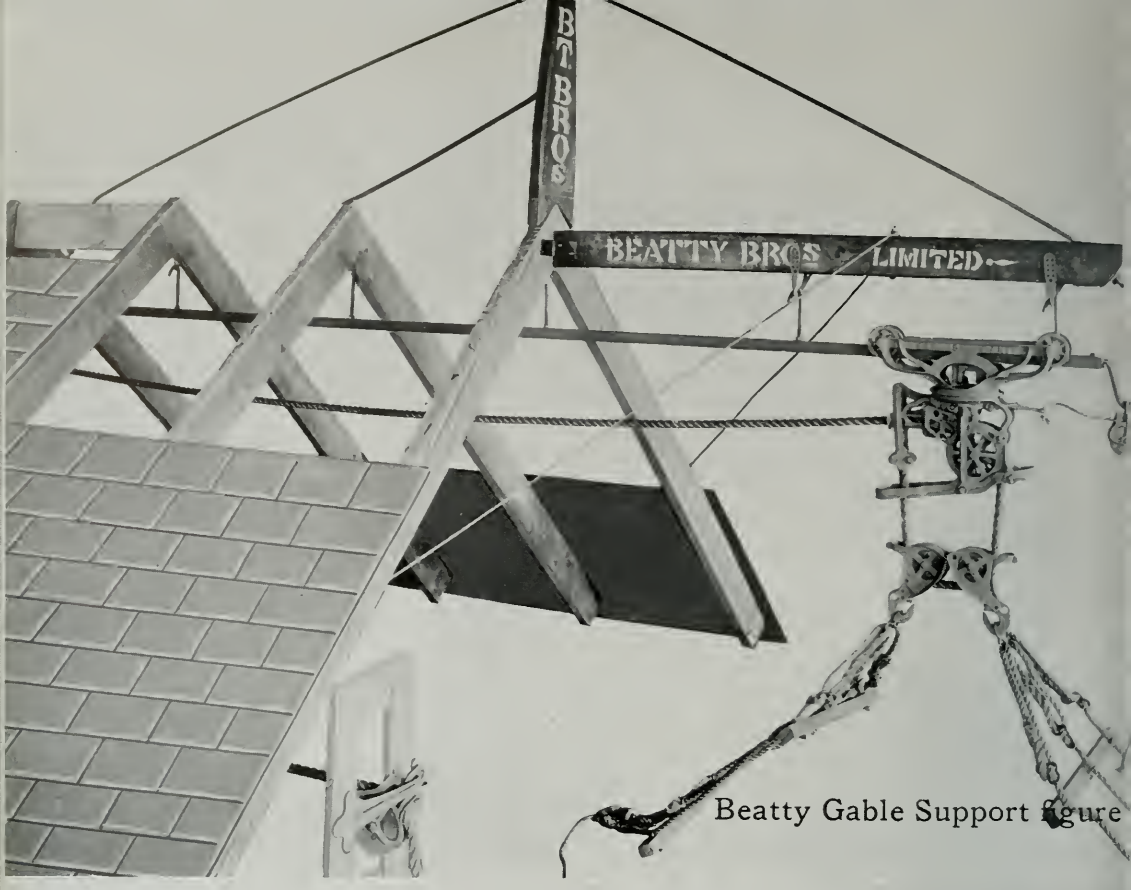
The Beatty Rope Hitch saves tying knots in the draft rope. It permits the rope to be lengthened or shortened instantly. It has a swivel hook through which a wire may be put to keep the rope hitch from unhooking off the whiffletree.

Beatty Floor or Pulley Hooks—Figs. 49-62-588

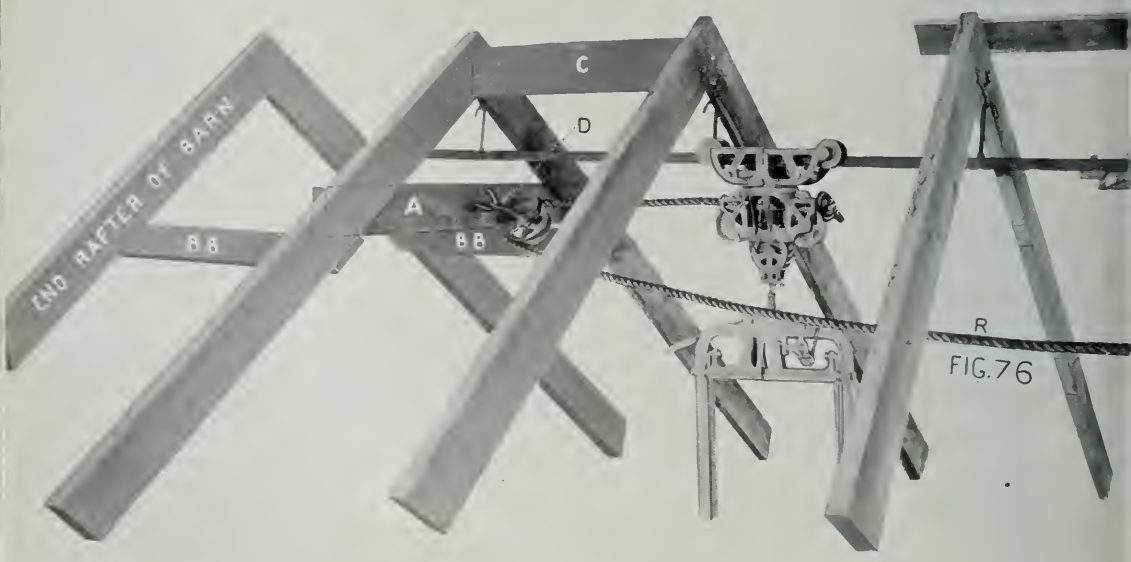
Beatty Floor Hooks (often called pulley hooks) have deep sharp threads which hold firmly. These hooks are better than others on account of the shape of the thread which is our own design. The neck is purposely left long so that a good piece of the full material will go into the post; the hook is much less liable to break off than when threaded right up to the bend.

Fig. 49 is the ¾-in. hook (Code, Aborn). Fig. 62 is ⅞-in. hook (Code, Adult). Fig. 588 (Code, Abil) threaded floor hook is intended for use in a plank frame barn where it is preferable to bore through and secure the floor hook with a nut. This hook has enough shank to go through 6-inch material. It is supplied with nut and washer. The threaded floor hook goes right through the plank and is held by a nut on the other side.

The Gable Extension Hanger, Fig. 425, is used to attach the hay track to the ridge pole of the barn, and at the same time, keep the track low enough to go through a gable door at the end of the barn. In end lift barns, the ridge is often carried forward to support the six feet of track which projects from the end of the barn. If the track is attached to collar ties inside the barn, by means of regular rafter brackets, the gable extension hanger will be needed to attach the track to the projecting six feet of ridge pole. The top of this hanger goes right up through the ridge pole and is fastened by the nut.



Beatty Gable Support



Installation of a Beatty Carr

Beatty Gable Track Support—Fig. 202

(Aghast)

When it is necessary to unload at the gable the track should be extended out about 5-ft. and strongly supported, since the greatest strain is always at the point where the load is lifted. The top illustration on page 338 shows the Beatty Gable Support which can be used with any style of track. The guy rod is made of ½-in. iron. The illustration also shows how the return pulley hook is attached for return pulley and sand bag for sling outfits.

Installation of Hay Track Outfits

One rafter bracket (see page 329) should be secured to each pair of rafters by 3-in. nails or special 2-in. bracket nails. The nails should not be driven straight into the face of the rafters, but on a slight angle.

The necessary hangers should then be used to hold the track to the rafter bracket. The track should be given a slight slope toward the stop block so that the car will return easily.

A heavy collar tie as shown in (A) in the lower illustration on the opposite page is placed behind the rafter and should be used to carry the pulley hook. This collar tie should be loosely supported at its ends by tough inch boards (BB) well nailed at the correct height to these rafters and also to the rafters at the end of the barn. A brace (C) should be nailed in between the rafters as shown to distribute the inward strain. The advantage of leaving the collar tie loosely supported in this manner is that it can be turned side-ways and taken down if at any time it is required to take the car off the track.

Fig. 76 shows at (E) how the gate cord is attached to a Beatty raise and lower stop block and held out of the way by staples or screw eyes. (EE.)

The illustration at the top of page 336 shows the correct method of installing a Hay Rack Outfit in an end lift barn. The pulley for the draft rope is placed one rafter in from the end opposite to the gable door, and the draft rope carried down under the roof to the side of the barn and out on a pulley and end lift bracket Fig. 120 down to a pulley on the ground. Particulars of track and hangers for gable doors are given on pages 244-245.

The illustration at bottom of page 336 shows the proper method of installing a Hay Track Outfit in a barn with a side drive. The end blocks for holding the draft pulleys should be placed one pair of rafters in from each end of the barn and supported by braces (BB) as shown in Fig. 76 and described above. The return pulley for sand bag and return rope is suspended from the track with a pulley bracket which hooks over the track behind the hanger on the opposite side of the drive way to the mow in which the unloading is being done.

Doors are easily blown down and broken away from old fashioned hinges

Doors open easily when BT Barn Door Track is used, and are never broken by the wind

The Advantages of Sliding Doors

It is practically impossible to get a swinging door on a barn that will be really satisfactory for any length of time. Locks and hinges come to grief or weaken and when the first high wind comes along it bangs the door backwards and forwards damaging the door and blowing material around inside the building.

The heavier a door may be the harder it is to keep it securely fastened, and the more damage is done if it gets unfastened. If swing doors are used a space must always be kept clear outside the door or it will not open. This is often very inconvenient, for instance, in snowy weather when the snow drifts against the door.

If sliding doors and barn door track are used these difficulties are overcome. The doors are always close to the building and cannot blow open. There are no hinges to spring, and no latch to get out of order. It is not necessary to clear a space outside the door, in order to get the door open. The doors do not get damaged by banging around and do not need repairing. The heaviest doors can be handled with ease.

Beatty Tube Barn Door Track—Fig. 584 and 419

(Doubt) (Danga)

There is no danger of birds, snow or ice blocking Beatty Tube Track, as the illustration on page 342 shows the door hangers run in an absolutely protected channel. The ends of the track are closed and there is no risk of the track getting clogged and making the door hard to open and close. The door is centre hung so that the wheels of the hangers always run squarely in the channels. This is a great advantage and insures smooth running. The door hanger is suspended from the exact centre of the track so that the wheels cannot get out of alignment. Owing to this construction the door runs close to the wall.

There are two types of Beatty Tube Track. Specifications are as follows:—

Fig. 584—16-gauge copper bearing bessemer steel with flanges turned up. Weight, 1⅔ lbs. per ft. Finished in black Japan.

Fig. 419—14-gauge copper bearing bessemer steel with flanges turned down to make the track self-cleaning. Finished in black Japan.

Beatty Barn Door Track is made in 6-ft., 8-ft. and 10-ft. lengths. When ordering specify the number of brackets required for attaching the track to the barn. The regular bracket weighs ¾ lbs. and should be ordered according to the following schedule. Place a bracket at each end and at each joint. On a 6-ft. length of track use one intermediate bracket, on an 8-ft. length use two intermediate brackets, and on a 10-ft length three intermediate brackets.

With each pair of hangers are packed two steel clips, which fit into the regular centre bracket converting them into end brackets when desired. By riveting these two clips together with the rivet supplied for the purpose they are converted into a centre stop for double doors.

Brackets are packed one dozen in a box, complete with the necessary lag screws.

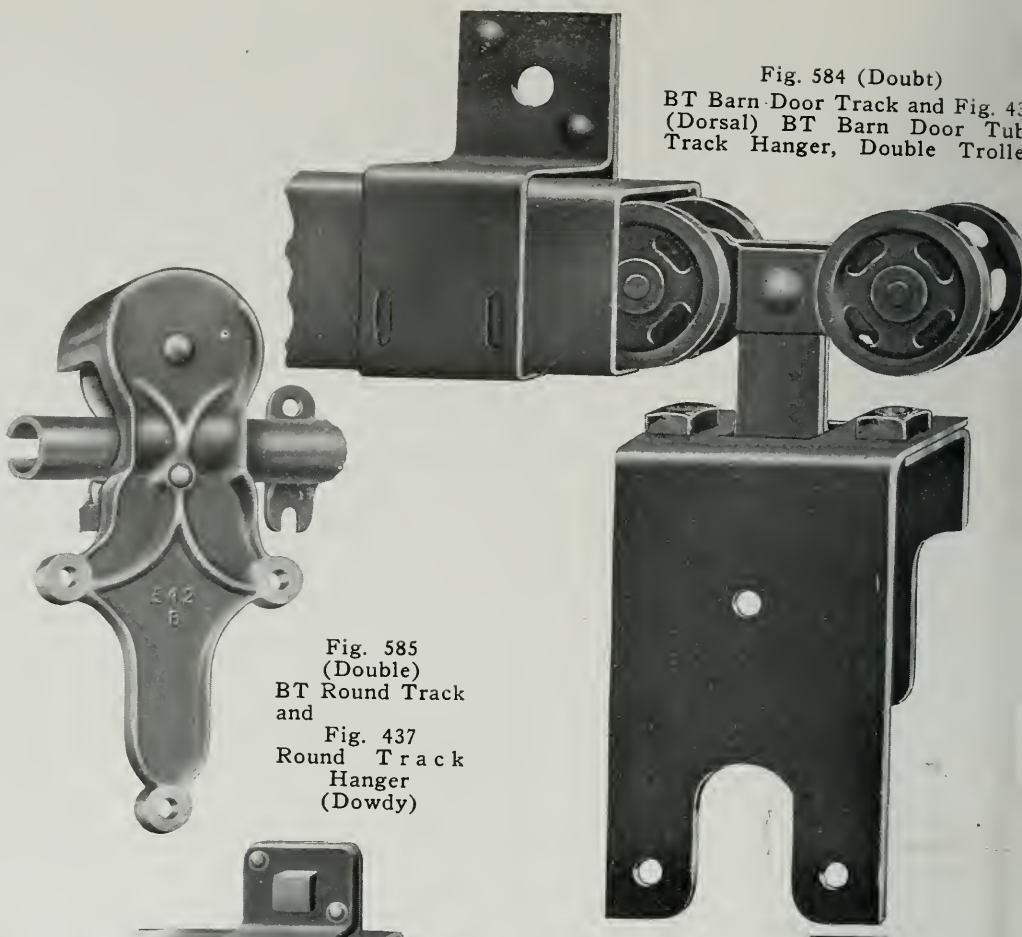


Fig. 584 (Doubt)
BT Barn Door Track and Fig. 43
(Dorsal) BT Barn Door Tub
Track Hanger, Double Trolle

Fig. 585
(Double)
BT Round Track
and
Fig. 437
Round Track
Hanger
(Dowdy)

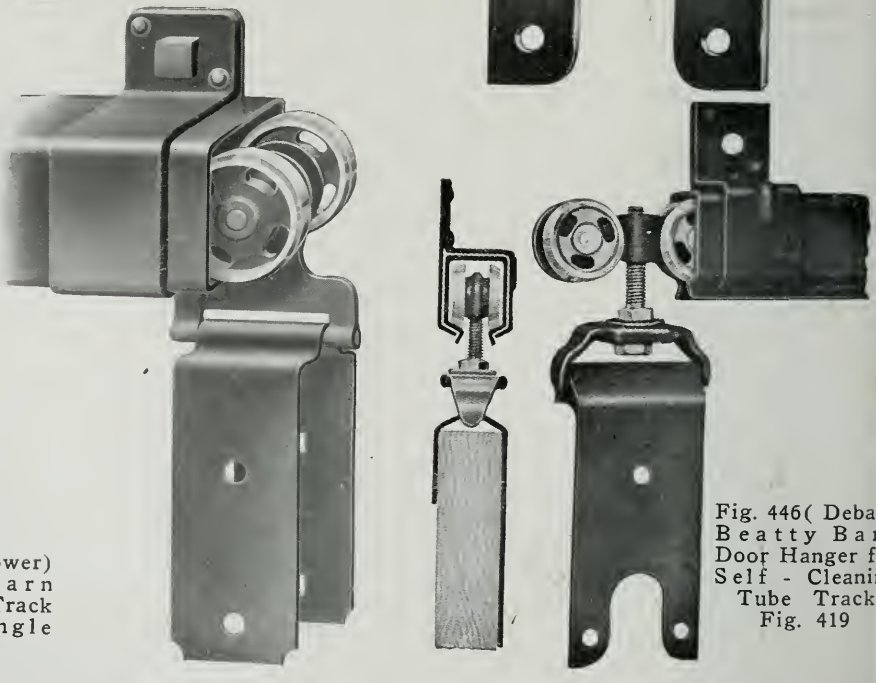


Fig. 438 (Dower)
Beatty Barn
Door Tube Track
Hanger, Single
Trolley

Fig. 446(Debag
Beatty Barn
Door Hanger fo
Self - Cleanin
Tube Track
Fig. 419

Beatty Barn Door Hanger Double Trolley—Fig. 439

(Dorsal)

The Beatty Barn Door Hanger, Fig. 439, has a flexible joint and hinged apron, allowing the door to swing outward without danger of breaking or binding on the track. The door is close hung, the distance between top of door and bottom of track being only 2-in. By loosening a nut the hanger can be adjusted to suit any thickness of door, from 1¾-in. to 2½-in. Each hanger has four track wheels, 2½-in. in diameter, track wheels have faces turned on the lathe to insure smooth easy running. Wheels are also fitted with steel roller bearings, packed in grease, properly machined so that they revolve easily. The apron of the hanger is black enamelled steel, 6-in. long and 3½-in. wide. It is supplied complete with bolts for going through the door, and can be used with any door not exceeding 400 lbs. in weight. Weight of Fig. 439 per pair, seven pounds.

Beatty Barn Door Hanger Single Trolley—Fig. 438

(Dower)

The Beatty Barn Door Hanger, Fig. 438, is very similar to Fig. 439 but has two wheels instead of four and is not adjustable for doors of different widths. It is made to fit a door 1¾-in. in thickness. The hanger is close hung, distance between top of door and bottom of track being only 1⅜-in. Apron is black enamelled steel 4-in. long and 2-in. wide. It is supplied with bolts for going through the door. Can be used with any door not exceeding 100 lbs. in weight. Weight of Fig. 438 per pair, three lbs.

Beatty Barn Door Hanger Double Trolley—Fig. 446

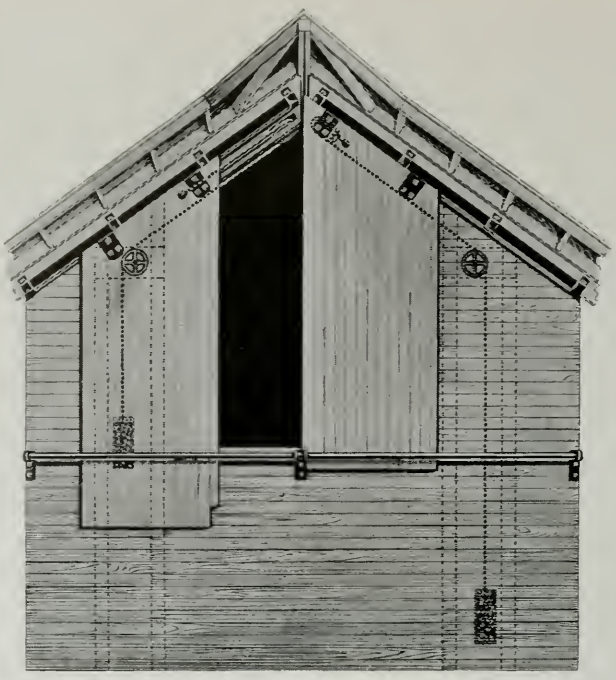
(Debag)

The Beatty Barn Door Hanger, Fig. 446, has a flexible joint and hinged apron allowing the door to swing outward without danger of breaking or binding on the track. This hanger has a double adjustment, namely, adjustment in and out to keep the door close to the building; up and down to make an accurate fit at the floor line. It is made to fit a 1¾-in. door.

Each hanger has four track wheels with faces turned on a lathe to insure an easy running. It is fitted with heavy roller bearings packed in grease properly machined so that they revolve easily. The frame clevice is malleable. Finished in black enamel and supplied with bolts for attaching to door. It can be used on door up to 400 lbs. in weight. Weight of Fig. 446 per pair, seven lbs.

Beatty Round Barn Door Track and Hangers

We recommend Beatty Round Track, Fig. 585, for indoor use, where the doors are not extra heavy. The hangers are strong, having strong wheels with roller bearings and lower guide rollers to prevent them from binding on the track or de-railing. They are made of malleable iron and shipped in pairs complete with end stops and bolts to go through the door, the parcel weighing about 6¾ lbs. The track is made of high carbon steel and Japanned. Track is supplied in 6-ft., 8-ft. and 10-ft. lengths with the brackets riveted in place on the track. Weight of track, 1-lb. per ft.



How Beatty Barn Door Track is used on Gable Doors

Fig. 502—(Durk) Offset Hinge for Gable Doors

Fig. 737—(Die)
Heavy Stay Roller for Barn Door Track

Beatty Silo Irons, Fig. 493, and Rods

Barn Door Track for Gable Doors

The illustration at the top of the opposite page shows how the track pulleys, and counter weights are arranged to accommodate a sliding gable door. The tube style of barn track should always be used for this work as it will not clog or jamb and because of the difficulty of getting up to fix the door gable track if it does jamb. The following material is required to handle a gable door on track.

Two pairs four wheel gable door hangers Fig. 696. Track order two feet more than twice the width of the door Fig. 584. Brackets should not be over 30-in. apart. Specify Fig. 693 for brackets. Four 4-in. pulleys, Fig. 376, round steel guide which should be one foot wider than twice the width of the door. Light steel cable sash cord, order 4-ft. more than 4 times the width of the door. One centre and two end binders to prevent the door from banging. Two counterweights proper size to balance doors.

Beatty Hinges for Gable Doors—Fig. 502

(Durk)

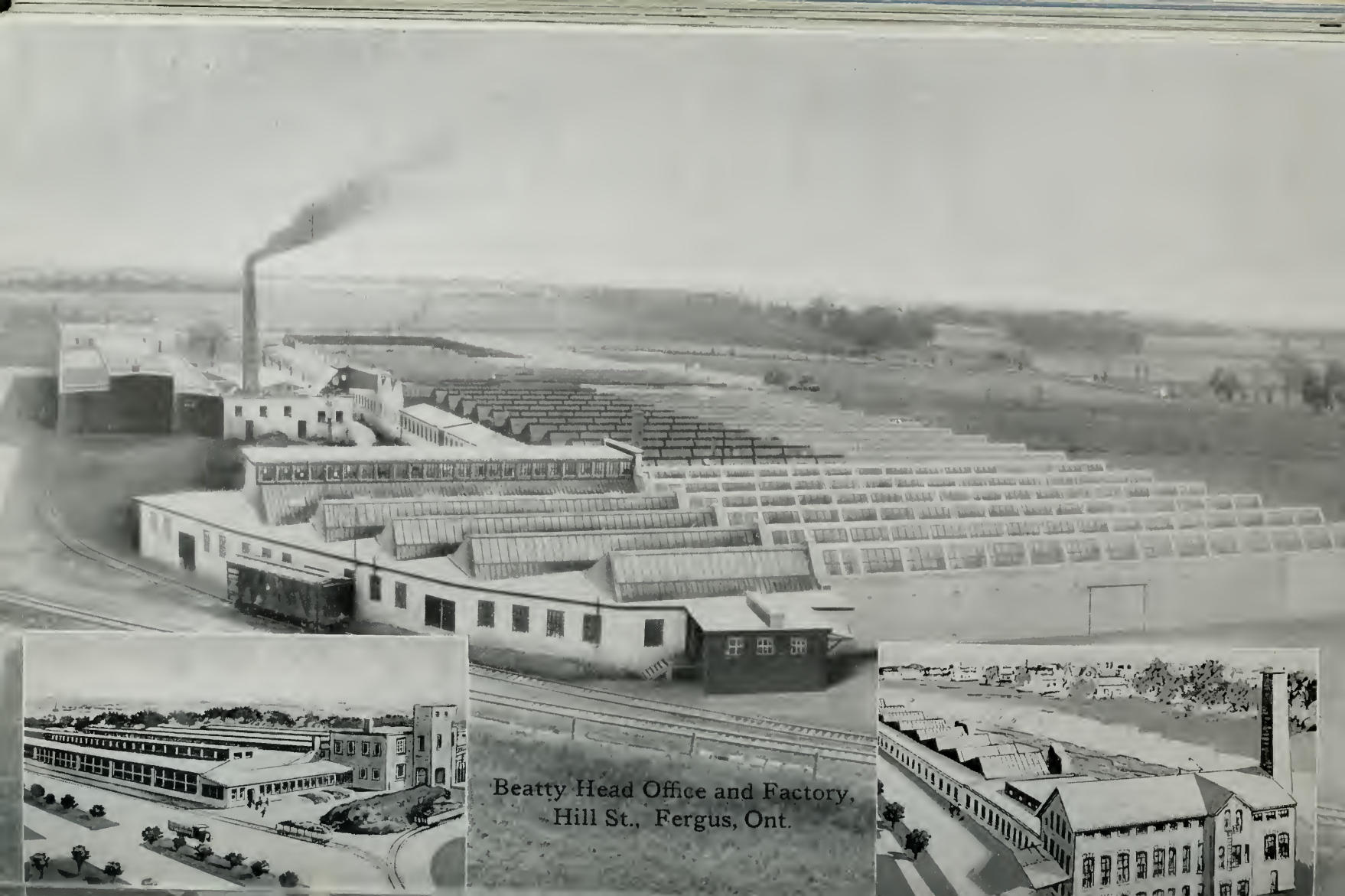
Fig. 502 illustrates another method of hanging a gable door. The hinges shown in Fig. 502 are placed on the bottom of the door on the outside of the barn and are offset to permit the door to go outside the siding. The door may be allowed to drop freely when it is desired to open it, as the air will cushion the fall and prevent the door from banging with too much force against the end of the barn.

Beatty Silo Irons and Rods

Beatty Silo Irons are made of malleable iron in three sizes, to accommodate ½-in. ⅝-in. and ¾-in. rods. Up to the centre ¾-in. rods should be used, as this is where the strain is heaviest, above the centre ⅝-in. rods are sufficient, ½-in. rods are used on wood tanks. Specify Fig. number and size required when ordering. Rods for silos are shipped in coils and are made in two sizes ⅝-in. Fig. 703 and ¾-in. Fig. 180. When ordering silo rods specify length required.

The table given below gives some useful information regarding the size and construction of stave silos. The figures are based upon feeding 40 lbs. of silage per day per cow for 6 months, and upon a yeild of 10 tons per acre.

Diam.	Height	Capacity Tons	No. of Cows fed	Acres of Corn to fill	No. of 5¼-in. staves	No. of Doors	No. of Hoops
	20	31	8	3	68	10	9
10	24	36	10	3½	68	12	10
12	28	60	15	6½	83	14	12
14	24	74	19	7½	98	12	10
14	30	92	25	9	98	15	13
14	32	98	27	10	98	16	14
16	30	121	32	12	114	15	13
16	32	129	35	13	114	16	14
16	34	140	38	14	114	17	14
16	36	145	41	14½	114	18	15
16	40	161	45	16	114	20	17
18	36	190	50	19	127	20	15



Beatty Head Office and Factory,
Hill St., Fergus, Ont.

A Personal Message

This book has been devoted almost entirely to the consideration of problems connected with planning and equipping farm buildings. So far as it is possible, in print, we have demonstrated the quality of Beatty Equipment by means of actual photos and careful, detailed specifications.

Something more remains to be said before our proposition has been fully presented to you. Behind the goods themselves stands the firm that makes them, and it is most important to know whether that firm is strong, well-known and capable of keeping its promises. Building or remodelling a barn is a task that represents a large investment, so that it is important to make sure of the reliability of any firm undertaking to supply the equipment for the work.

A Few Words About the Beatty Business

The firm of Beatty Bros. Limited, was founded in 1873 by George and Matthew Beatty. In 1886 Matthew Beatty died and George Beatty continued the business alone until 1901, when his sons, Will and Milton, joined him. The hay carrier business at that time was developing rapidly, and the Beatty Line was well known. Soon the Oshawa hay tool line, manufactured by James Provan, and the Whitman & Barnes line, manufactured in St. Catharines, were purchased, after that the hay carrier business of Messrs. Tolton Bros., Guelph. In 1912 we purchased the entire business of Wortman & Ward of London, which was taken over including W. & W. Pumps, Hay Carriers and Daisy Churns. In the hay carrier line alone we have bought out seven companies, the last being R. Dillon & Sons, Oshawa, in 1923.

The Beatty Manure Carrier was invented in 1904 and the Beatty Sanitary Steel Stall about the same time.

The position of this firm in the barn equipment field is well indicated by the photos which appear in this catalogue. More Beatty Steel Stalls are sold in Canada than all other makes combined. Twice as many Beatty Manure Carriers and Beatty Hay Carriers are sold every year as all other makes combined.

Beatty Bros. Limited, have completely equipped the great proportion of experimental farm barns built by our Governments. A list of these follows. You will note that there are some in every province of the Dominion. Yet big stable jobs do not form one per cent. of the total business. Most of Beatty Equipment is sold to Canadian farmers of average means. All the barns shown in this book are fitted with Beatty goods.

The Result of Experience and Actual Test

While the makers of Beatty Equipment have been responsible for most of the modern improvements in Cow Stable Equipment, we should like to make it very plain that these improvements are in no sense experimental. When we finally announce a new feature, we have tested it—in many cases for years. One example will make our meaning clear. On pages 130-1 we show our new Style K Stall, with the new brass rust-proof sleeve—and we are the first makers of steel stalls to supply it. The idea was conceived seven years ago, and since that time has been undergoing careful tests in an actual stable under actual conditions. That is why we can speak so confidently about its value. This has always been our policy—we do any experimenting at our own expense not at the expense of the purchasers of our Equipment.

DOMINION AND PROVINCIAL FARMS USING BEATTY EQUIPMENT

MARITIME PROVINCES

Dominion Experimental Farm	Fredericton, N.B.
Dominion Experimental Farm	Charlottetown, P.E.I.
Dominion Experimental Farm	Nappan, N.S.
Dominion Experimental Farm	Kentville, N.S.
N. B. Provincial Hospital	St. John, N.B.
N. S. Provincial Hospital	Dartmouth, N.S.
P. E. I. Provincial Hospital	Charlottetown, P.E.I.
N. S. Agricultural College	Truro, N.S.
Dorchester Penitentiary	Dorchester, N.B.

QUEBEC

School of Agriculture	Ste. Anne de la Pocatiere
Dominion Experimental Farm	Cap Rouge
Dominion Experimental Farm	Lennoxville
Quebec Experimental Farm (Sanatorium)	Lac Edouard
Quebec School of Milk Industry	St. Hyacinthe
Quebec Experimental Farm	Le Fernier Abitibi
Quebec Nursery Farm	Berthierville
Quebec Experimental Farm (Seminary)	Rimouski
McDonald College	St. Anne de Bellevue
Oka Agricultural College	Oka

ONTARIO

Central Experimental Farm	Ottawa
Ontario Agricultural College	Guelph
Ontario Experimental Farm	Matheson
Ontario Experimental Farm	Fort William
Ontario Prison Farm	Guelph
Ontario Government Farm	Monteith
Dominion Government Indian Institute	Muncey
Dominion Experimental Farm	Kapuskasing
Vimy Ridge Community Farm	Guelph
Ontario Hospital	Whitby
Ontario Hospital	Kingston
Ontario Hospital	Brockville
Ontario Hospital	London
Ontario Hospital	Woodstock
Ontario Hospital	Orillia
Ontario Hospital	Hamilton
Ontario Hospital	Penetang
Ontario Agricultural School	Kemptville
Ontario Industrial Farm	Burwash
Boys' Training School	Bowmanville
R C. M. P. Horse Stables	Ottawa
Ontario Veterinary College	Guelph
Ontario Demonstration Farm	Hearst
Connaught Laboratories	Toronto
Indian Boarding School	Fort Frances
Indian Boarding School	Kenora
Indian Boarding School	Sioux Lookout

MANITOBA

Dominion Experimental Farm	Brandon
Dominion Government Indian Institute Farm	Brandon
Manitoba Agricultural College	St. Vital
Dominion Government Indian Institute Farm	Elkhorn
Indian Industrial School	Portage la Prairie
Provincial Hospital	Brandon
Dominion Experimental Farm	Morden
Indian Boarding School	Pine Falls
Provincial Hospital	Selkirk
Provincial Hospital for Aged and Infirm	Portage la Prairie

SASKATCHEWAN

Dominion Experimental Farm	Indian Head	Dominion Experimental Farm	Rosthern
Dominion Experimental Farm	Wilkie	Indian Boarding School	Round Lake
Dominion Experimental Farm	Scott	Indian Boarding School	Duck Lake
Dominion Prison Farm	Prince Albert	Indian Boarding School	Onion Lake
Dominion Experimental Station	Swift Current	Provincial Hospital	North Battleford

ALBERTA

Dominion Experimental Farm	Lacombe	Alberta Asylum Farm	Ponoka
Dominion Experimental Farm	Lethbridge	Alberta Asylum Farm	Oliver
Alberta Demonstration Farm	Olds	University of Alberta	Edmonton
Alberta Demonstration Farm	Youngstown	Lethbridge Jail	Lethbridge
Alberta Demonstration Farm	Claresholm	Indian Industrial School	Edmonton
Alberta Demonstration Farm	Vermilion	Indian Industrial School	Pincher Creek
Alberta Demonstration Farm	Raymond		

BRITISH COLUMBIA

B. C. University Farm	Point Grey	Coqualeetza (Indian) Institute	Sardis
Dominion Government Farm	Sydney	St. Mary's (Indian) School	Mission
Dominion Government Farm	Agassiz	Indian Industrial School	Kamloops
B. C. Colony Farm	Coquitlam	Dominion Government Farm	Invermere
Sanitorium Farm	Kamloops	Indian Industrial School	Fraser Lake

Better Value in the Beatty

Complete specifications are given throughout this book for Beatty Goods. Compare them with any other and you will find that Beatty Goods are better made, made of heavier, stronger materials and better finished. Hundreds of instances in proof appear in this book. There are more patents protecting the Beatty Equipment than all other styles of Canadian barn equipment combined. At every hand, there is abundant evidence of superiority in design, manufacture and service.

And yet Beatty Equipment compares favourably in price with other makes. Why is it that we can afford to give this extra value? Why are we able to add so many patented features; to make our goods heavier; to maintain a barn planning department in charge of competent architects; to build our equipment to suit the stable so that every part goes right in its place? We can do this because of the quantity of material we sell and the economies that this enables us to make.

You Benefit by Our Efficient Organization

Everyone knows that when you are making 50,000 Stanchions each Stanchion can be made at lower cost than when you are only making 500. Special machines can be put in to do the work that other people have to do by hand. That is what we have done. We have a machine for riveting stanchions which takes the place of 5 men. Another machine, will bend more triple curve partitions in a day than 50 men. The wide sale of Beatty Equipment has made it worth while to install these machines and save money on every job we sell. Labor cost is reduced to a minimum. Beatty Equipment is sold in practically every part of the World where climatic conditions make it necessary to tie cattle inside.

Economies From Which You Profit

We not only make barn equipment, but pumps, churns, grain grinders, washing machines and other lines. The result is that on our main lines, we are never compelled to purchase our materials in less than carload quantities.

We purchase our steel tubing, steel, iron and coal in carloads. Our oil fuel is purchased in tank cars. We are one of the largest buyers in Canada of malleable iron-castings—these castings being used very largely in Beatty Stable Equipment.

These purchases give us a tremendous advantage over small manufacturers. We are able to come into the market at the right time with an attractive tonnage, which warrants the makers in giving us their very lowest figures. It also results in a big saving of freights.

We cannot guarantee to give you a lower *price* on Beatty Equipment than you might get on goods turned out by some manufacturers. We can, and do, absolutely guarantee to give you better *value* for the money paid than you can obtain anywhere else.

After all it is the service given by the goods in actual use that counts. No one is more anxious that our Equipment should give you the utmost service than we are. In order that it may do this, we put behind it all our experience, ingenuity and special machinery; all our care, thought and attention. We look forward to the chance of showing each reader of this book what we can do.

INDEX

A. Stall A, (Horse Stall) 253
Adjustable Stanchion 117
Alignment Device 119
Alley Gate 145
Appearance of Barn 13
"A" Poles 305
Attachment—Fork for Sling Car.....332
BARN BUILDING SECTION.....1 to 83
Barn Door Track Section.....340 to 345
Barn Plan Service 83
B, Stall B, (Horse Stall).....253
Bell Trap 257
Bending Track 302
Big Jim Track Hinge .....301 to 303
Big Lift Hay Carrier 321
Biped and Clamps 305
Blanket Bracket 261
Bracket Bracing 307
Brackets, Rafter Brackets 329
Brick, Ventilating Wall Brick 259
Bowls, Oat Bowls 245
Bowls, Water Bowls .....190 to 208
Box Stall Mangers (Horse Stable).....241
Box Stall Measurements 69
Box Stall Doors (Horse Stable).....249
Box Stall Guards (Horse Stable)....237 ..... and 249
Bull Dozer Power Pump 219
Bull Pen .....158 to 165
Bull Pen Gate 163
Bull Pen Manger 160
Calf Pens .....147 to 149
Carriers, Hay Carriers .....319 to 325
Carriers, Feed .....309 to 311
Carriers, Manure .....288 to 291
Cast Iron Mangers (Horse).....240 to 243
Cattle Stand Measurements 66
C, Stall C, (Horse Stall) 255
Cement Clevice 119
Cement Work .....74 to 81
Centre Trip Slings 331
Chain Lift Manure Carrier 291
Chain, Stall Cross Chain 143
Chain Tie, Weakness of 107
Chain, Stanchion Cross Chain 143
Clamps—Stall Clamps 123
Column Clamps 22
For Wood Stalls 141
Biped 305
Clip, Stake Clip 329
Columns, Supporting Cols. .....22 to 25
Columns, Horse Stall Supporting Cols...235
Combination Cow and Calf Pens .....152 to 155
Complete Cow Stalls 131, 133, 135
Complete Horse Stalls .....252 to 255
Coveyors, Milk Can, etc. 311
COW STALL SECTION .....82 to 145
Cow Pens (Combination) .....152 to 155
Cow Pen (With Corner Manger).....167
Cover (Gutter Cover) 257
Cribbing, Construction of 74
Cross Chains 143
Deep Well Working Head 221
D. Stall D, (Horse Stall) 255
Divisions, Manger Divisions .....136 to 139
Doors, Horse Box Stall 249
Doors, Gable Doors 344
Drainage Plan 71
Drain Pipe Grating 257
Driveway, Railing for 143
E. Stall E, (Horse Stall) 253
Electric Pump 217
End Drive Barns 50
End, Finished End 145
End Trip Binding Pulley .....320 to 331
English Type Gutter 67
Erection—Plank Frame Barn 28, 29
Steel Stalls 75, 81
Water Bowls 202, 203
Manure Carriers.....291 and 295
Hay Carriers 336, 338, 339
F. Stall F, (Horse Stall) 253
Facing In vs. Facing Out 73
Factories of Beatty Bros., Ltd.....346
Feed Carriers and Trucks .....308 to 311
Feed Passage, Measurements 66
Feed Rail 139
Finished End 145
Finish On Beatty Equipment 99, 127
Floors .....64 and 75-81
Floor Hooks 337
Forks, Hay Forks 332-333
Fork Attachment for Sling Cars 332
Foundations 63
Framing .....14 and 26-45
Fresh Air Inlets .....21 and 258-259
Fundamentals of Barn Design 9-14
Gable Door 344-5
Gable Door Hinge 344-5
Gable Extension Hanger 337
Gable Support 338-9
Galvanizing 99, 127
Gates—Alley Gate 145
Combination Pen and Bull Pen 162
Gothic Framing .....40 to 43
Gutters—Sizes 67
English Style 67
How to Build .....77 to 81
Gutter Traps 257
Guy Rods, for Swing Pole, etc.....300
Handwheel Windlass 282
Hangers—for Doors 343
for Manure Carrier Track....295
for Hay Carrier Track.....326
Tool Hanger 260-1
Harness Hooks and Brackets 260-1
HAY CARRIER SECTION .....312 to 339
Hay Racks .....153 and 246-247
Heads In vs. Heads Out 73
Heavy Timber Frame 26
Hinge—for Water Bowls in Manger Divisions 136
Heavy Hinge for Horse Box Stall Door 263
Manure Carrier Track Hinges 300-301
For Gable Door 344-345
Big Jim Hinge in use 303

INDEX—Continued

Hitch, Rope Hitch 337
Hog Barn 60-61
Hog Pens .....174 to 187
Hog Troughs 188-189
Hoister, Pulley Hoister 337
Holder—for Name Plate 142
Pail Holder for Calf Pen 153
HORSE STABLE FITTINGS SECTION .....222 to 263
Horse Stall Measurements 69
Inlets, Fresh Air Inlets .....21 and 258-259
Installation—Steel Stalls .....75 to 81
Water Bowls 202-203
Manure Carrier Switch....303
Hay Carriers 336, 338-339
K, Stall K, (Cow Stall) 131
L Stall L, (Cow Stall) 133
Lining for Hog Trough 188
L-shaped Barns .....54 to 57
M, Stall M, (Cow Stall) 135
Manger Divisions 137
Manger Feed Rail 139
Manger Construction .....74 and 80
Manger Templet 74
Manger Sweep 75
Mangers, Horse Stall .....238 to 243
Manger Trap 257
Manger Windlass 139
Manure Carrier, Beatty Standard 289
Manure Carrier, Endless Chain 291
MANURE AND FEED CARRIER SECTION .....264 to 311
Manure Carrier Track 293
Manure Pit, Plan for 70
Maple Leaf Hay Carrier 323
Milk Can Conveyors 310-311
Milk House, Plan for 59
Name Plate 142
Narrow Barns, Plans for 53
Oat Bowls 244-245
One and-a-half Storey Barns..38-39 and 51
Outside Steel Construction 307
Ornamental Horse Stable Fittings 263
Pacific Hay Carrier 325
Pail Holder for Calf Pens 153
Partition Cap 237
Partitions, Beatty Triple Curve 125
Passages, Feed Passages 66
Pens—Combination Cow and Calf Pen .....153 to 155
Bull Pen .....158 to 165
Cow Pen with Corner Manger....167
Steer Pens .....169 to 173
Hog Pens .....174 to 187
Plans, Plan Section .....46 to 61
Plank Framing .....26 to 41
Pneumatic Water Pressure Systems .....216 to 221
Pole, Swing Pole for Manure Carrier....299
Pulleys 335
Pulley Bracket, End Lift 335
Pulley Hoister 337
Pulley Hooks 337
PUMP SECTION .....212 to 221
Posts, Horse Stall Posts .....232 to 235
Racks, Hay Racks .....153 and 246-247
Rack, Sponge Rack 260-261
Rafter Brackets 329
Railing for Driveway 143
Regulating Tank for Water Bowls 201
Rest, Stanchion Rests .....115 and 141
Roller Arms, Manure Carrier 287
Rope Hitch 337
Round Track for Doors 343
Sanitary Water Bowl .....204 to 208
Self-Oiling Deep Well Working Head..221
Shape and Size of Barn 13
Single Rail Steel Track 327
Site of Barn 13
Silo Rods and Irons 345
Shields, Window 17
Slings 331
Soap Box 261
Sponge Rack 261
Square Top Fork 333
Stalls—Style K, Cow Stall 131
Style L, Cow Stall 133
Style M, Cow Stall 135
Styles A and B, Horse Stall 253
Styles C and D, Horse Stall 255
Styles E and F, Horse Stall 253
Stall Cross Chain 143
Stanchion .....110 to 117
Stanchion Cross Chain 143
Stanchion Rests .....115 and 141
Steel Tanks .....209 to 211
Steel Swing Pole 299
Steer Pens .....169 to 173
Stop Block—Big Lift Carrier 320
Maple Leaf Carrier 323
Stake Clips 329
Stay Rollers 345
Storage Tanks .....209 to 211
Supporting Columns .....22 to 25
Supporting Posts, Horse Stable 235
Sure Stop Post 132
Swinging Fronts, Horse Stalls 251
Switches 297
Tank, Regulating 201
Tanks, Steel and Wood Storage....209 to 211
Templet for Manger 74
Track—Hay Carrier 327
Manure Carrier 293
Barn Door 343
Traps, Manger, Gutter and Bell 257
Triple Grapple Fork 333
Troughs, Hog Troughs 188-189
Trough, Wall Trough 259
Tool Hanger 260-261
Turntable for Manure Carrier 297
Ventilation .....18 to 21
Ventilators .....21 and 258-259
Ventilating Harness Brackets 260-261
Ventilating Wall Brick 259
Wall Construction 64
WATER BOWL SECTION .....190 to 208
Water Pressure Systems .....212 to 221
Western Plans .....51 to 53
Windows 16-17
Window Shield 17
Wood Tanks 209-211

Our Golden Rule Guarantee

WE guarantee BT Stable Equipment to be made of the very best material that can be used for the work and that the finish we use is the most durable that can be applied on stalls.

And we go further. We guarantee to each individual purchaser that BT Stable Equipment will give satisfactory service in his barn.

We make this strong guarantee for mutual protection. If there should be any fault in any of our goods, or dissatisfaction on the part of the buyer, we want to know it.

We are able to make this strong guarantee because of our splendid experimental department in which everything is thoroughly tested before being offered for sale, our complete manufacturing facilities, special machines being used for all operations, and our careful barn planning department in which complete sets of blue prints are made for all orders of stable equipment, whether large or small, before being sent to the factory. This service insures to you that your stable equipment will be right before it leaves the factory.

BEATTY BROS. LIMITED

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